Copy 4
RM L58E29

[redacted]

UNCLASSIFIED

NACA RM L58E29

NACA

RESEARCH MEMORANDUM

WIND-TUNNEL INVESTIGATION OF THE EFFECT OF SWEEP AND TAPER RATIO ON EFFECTIVENESS OF SPOILER-SLOT-DEFLECTOR CONTROLS ON ASPECT-RATIO-4 WINGS AT TRANSONIC SPEEDS

By Alexander D. Hammond and Linwood W. McKinney

Langley Aeronautical Laboratory
Langley Field, Va.

LIBRARY COPY

AUG 15 1958

LANGLEY AERONAUTICAL LABORATORY
LIBRARY, NACA
LANGLEY FIELD, VIRGINIA

CLASSIFICATION CHANGED
To [illegible]
By authority of TIA letter 8-29-58 Date 4-24-61

CLASSIFIED DOCUMENT

This material contains information affecting the National Defense of the United States within the meaning of the espionage laws, Title 18, U.S.C., Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS

WASHINGTON

August 14, 1958

[redacted]

UNCLASSIFIED

NASA Technical Library
3 1176 01438 0696

NACA RM L58E29

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

UNCLASSIFIED

RESEARCH MEMORANDUM

WIND-TUNNEL INVESTIGATION OF THE EFFECT OF SWEEP AND TAPER RATIO ON EFFECTIVENESS OF SPOILER-SLOT-DEFLECTOR CONTROLS ON ASPECT-RATIO-4 WINGS AT TRANSONIC SPEEDS*

By Alexander D. Hammond and Linwood W. McKinney

SUMMARY

A wind-tunnel investigation has been performed in the Langley high-speed 7- by 10-foot tunnel by use of the transonic-bump technique to study the effect of wing sweep and taper ratio on spoiler-slot-deflector control effectiveness.

The investigation was made on aspect-ratio-4 wings with NACA 65A004 airfoil sections. The wings tested had 0°, 15°, 30°, and 45° sweep of the quarter-chord with a taper ratio of 1 for the 0° and 15° swept wings. Taper ratios of 0 and 1 for the 30° swept wing, and taper ratios of 0, 0.25, 0.50, and 1 for the 45° swept wings. Each of the wings was tested with a half-span spoiler-slot-deflector control with the spoiler projection set at -7.5 percent of the wing chord and the deflector projection varied to give ratios of deflector projection to spoiler projection of 0.50, 0.75, and 1.00. The spoiler was hinged on the upper surface of the wing on the 60-percent wing-chord line, and the deflector was hinged on the lower surface of the wing at the 70-percent wing-chord line. Tests were also made on full-span spoiler-slot-deflector controls located at the same position with a ratio of deflector projection to spoiler projection of 0.50 for the 0°, 30°, and 45° swept wings with a taper ratio of 1.00. All tests were made over a Mach number range from 0.60 to 1.10. The data are presented without discussion.

*Title, Unclassified.

UNCLASSIFIED

INTRODUCTION

The design of spoiler-slot-deflector controls at transonic speeds is hampered by the lack of a satisfactory theoretical approach and the lack of systematic data on the effects of wing geometry. However, the effects of wing aspect ratio and chordwise location of the control are covered in references 1 and 2 for the spoiler-slot-deflector control and for the plain spoiler, respectively. There are a number of investigations of the lateral-control characteristics of spoiler-slot-deflector configurations (for example, see refs. 3 to 7) and the data of these investigations have shown certain advantages of the spoiler-slot-deflector combination over the plane spoiler, such as the good control effectiveness at high angles of attack of the spoiler-slot-deflector control.

The present paper presents the results of a wind-tunnel investigation made to determine the control effectiveness of spoiler-slot-deflector controls at transonic speeds. The variables investigated were wing sweep (0°, 15°, 30°, and 45° sweepback), taper ratio (taper ratios of 0, 0.25, 0.50, and 1.00), and ratio of deflector projection to spoiler projection (projection ratios of 0.50, 0.75, and 1.00). The transonic speeds were obtained by using the transonic-bump technique in the Langley high-speed 7- by 10-foot tunnel.

In order to expedite the publication of the results of this investigation, no discussion of the data is presented. All the data are presented in tabular form and, in addition, some data showing significant trends are presented in graphic form.

COEFFICIENTS AND SYMBOLS

The data are presented about the model wind axes with the origin on the wing-root-chord line at a longitudinal position corresponding to the quarter-chord of the mean aerodynamic chord.

C_L lift coefficient, $\dfrac{\text{Twice semispan lift}}{qS}$

C_D drag coefficient, $\dfrac{\text{Twice semispan drag}}{qS}$

C_m pitching-moment coefficient about $0.25\bar{c}$, $\dfrac{\text{Twice semispan pitching moment}}{qS\bar{c}}$

[redacted]

C_l rolling-moment coefficient, $\frac{\text{Semispan rolling moment}}{qSb}$

C_n yawing-moment coefficient, $\frac{\text{Semispan yawing moment}}{qSb}$

b wing span, ft

c wing chord, ft

$\bar{c}$ wing mean aerodynamic chord, $\frac{2}{S}\int_0^{b/2} c^2 dy$, ft

S wing area, sq ft

$\Lambda_{c/4}$ wing sweep, measured at quarter-chord line

A wing aspect ratio, b^2/S

λ wing taper ratio

q free-stream dynamic pressure, $\frac{1}{2}\rho V^2$, lb/sq ft

V free-stream velocity, ft/sec

ρ free-stream density, slugs/cu ft

R Reynolds number based on wing mean aerodynamic chord

M free-stream Mach number

M_l local Mach number

α angle of attack, deg

δ_s spoiler projection measured from wing surface (negative when projected above surface of wing), fraction of wing chord

δ_d deflector projection measured from wing surface (negative when projected below surface of wing), fraction of wing chord

$\frac{\delta_d}{\delta_s}$ ratio of deflector projection to spoiler projection

ΔC_L, ΔC_m, ΔC_D change in coefficient due to control deflection, difference between wing with control and plain wing

[redacted]

$(x_{cp})_{\Delta C_N}$ location of longitudinal center of pressure of incremental normal-force coefficient due to control projection, fraction of wing mean aerodynamic chord

MODELS

The geometric characteristics of the models used in the investigation are given in figure 1. The basic models were machined from solid steel to an NACA 65A004 airfoil section. The models were all aspect-ratio-4 semispan wings with no twist or camber. Wings with 0° and 15° of sweep had a taper ratio of 1.00, the 30° swept wings had taper ratios of 0 and 1.00, and the 45° swept wings had taper ratios of 0, 0.25, 0.50, and 1.00.

The steel flap-type spoiler and deflector controls extended from the wing root chord to one-half the wing span for all models. In addition, three models were tested with the spoiler-slot-deflector controls extended from the wing root to the wing tip. The spoilers and deflectors had a chord of 10 percent of the wing chord. The slot also had a chord of 10 percent of the wing chord with the trailing edge of the slot located at the 70-percent chordwise station on the wing. The steel spoiler was hinged to the upper wing surface at the leading edge of the slot. The steel deflector was hinged to the lower wing surface at the trailing edge of the slot. The spoiler projection δ_s was -0.075c for all the wings and the deflector projection δ_d was varied to give ratios of deflector projection to spoiler projection $\frac{\delta_d}{\delta_s}$ of 0.50, 0.75, and 1.00.

TESTS

The tests were made by using the transonic-bump technique in the Langley high-speed 7- by 10-foot tunnel. The models were attached to a five-component electrical strain-gage balance beneath the bump surface. The tests were made over a Mach number range from 0.60 to 1.10. The variation of the local Mach number over the bump surface in the vicinity of one of the model locations for several Mach numbers is shown in figure 2. The test angles of attack varied generally from -4° to 20° whenever the loads encountered did not exceed the design limit of the balance. The tests were made with a spoiler projection of -0.075c and deflector projection varied to give ratios of deflector projection to spoiler projection of 0.50, 0.75, and 1.00. The range of Reynolds number for the models having various taper ratios is shown in figure 3.

[redacted]

CORRECTIONS

The data have not been corrected for jet-boundary effects or blocking since the models were sufficiently small with respect to tunnel boundaries to make the correction negligible. The roll and yaw data presented represent the rolling- and yawing-moment coefficients resulting from deflection of the control on one wing. Since no reflection-plane corrections have been applied to the data, they represent symmetrically deflected controls and should be reduced if applied to antisymmetric deflection. The reflection-plane correction in terms of symmetrical rolling moment at $M = 0$ is the ratio of the rolling moment due to antisymmetric control deflection, as determined from reference 8, to the rolling moment due to symmetrical control deflection, as determined from reference 9 for a given control span on a given wing plan form. The variation of the reflection-plane correction with Mach number has not been established in the transonic-speed range but there is no correction at supersonic speeds.

RESULTS

The force and moment data obtained in this investigation are presented in tables I to VIII. A graphical presentation of some of the data for a ratio of deflector projection to spoiler projection (δ_d/δ_s) of 0.750 is shown in figures 4 to 10. Typical variations of ΔC_L, ΔC_D, ΔC_m, and $(x_{cp})_{\Delta C_N}$ with the several test parameters are given in these figures. The variation of these incremental coefficients with angle of attack for the spoiler-slot-deflector configuration on the untapered wings having sweeps of 0°, 15°, 30°, and 45° and on the 45° swept wings having taper ratios of 0, 0.25, 0.50, and 1.00 is shown in figures 4 and 5, respectively. Figure 6 shows the effects of angle of attack on the variation of ΔC_L, ΔC_D, ΔC_m, and $(x_{cp})_{\Delta C_N}$ with Mach number for the spoiler-slot-deflector configuration on untapered wings having sweeps of 0°, 15°, 30°, and 45°. The effect of wing sweep and taper ratio on the variation of these incremental coefficients with Mach number is shown in figures 7 and 8, respectively, for the untapered wing and the 45° swept wing at angles of attack of 4°, 8°, and 16°. The variation of ΔC_L, ΔC_D, ΔC_m, and $(x_{cp})_{\Delta C_N}$ for various angles of attack is plotted against sweep for the untapered wings and, against taper ratio for the 45° swept

wings at Mach numbers of 0.80, 0.90, and 1.00 in figures 9 and 10, respectively.

Langley Aeronautical Laboratory,
National Advisory Committee for Aeronautics,
Langley Field, Va., May 16, 1958.

REFERENCES

1. Hammond, Alexander D., and Huffman, Jarrett K.: Wind-Tunnel Investigation of the Effect of Aspect Ratio and Chordwise Location on Effectiveness of Spoiler-Slot-Deflector Controls on Thin Untapered Wings at Transonic Speeds. NACA RM L57G08a, 1957.

2. Hammond, Alexander D.: Wind-Tunnel Investigation of the Effect of Aspect Ratio and Chordwise Location on Effectiveness of Plain Spoilers on Thin Untapered Wings at Transonic Speeds. NACA RM L56F20, 1956.

3. Lowry, John G.: Data on Spoiler-Type Ailerons. NACA RM L53I24a, 1953.

4. Vogler, Raymond D.: Wind-Tunnel Investigation at Transonic Speeds of a Spoiler-Slot-Deflector Combination on an Unswept NACA 65A006 Wing. NACA RM L53J21, 1953.

5. Thompson, Robert F., and Taylor, Robert T.: Effect of a Wing Leading-Edge Flap and Chord-Extension on the High Subsonic Control Characteristics of a Spoiler-Slot-Deflector Control Located at Two Spanwise Positions. NACA RM L54I09, 1954.

6. West, F. E., Jr., Whitcomb, Charles F., and Schmeer, James W.: Investigation of Spoiler-Slot-Deflector Ailerons and Other Spoiler Ailerons on a 45° Sweptback-Wing—Fuselage Combination at Mach Numbers From 0.60 to 1.03. NACA RM L56F15, 1956.

7. Hammond, Alexander D., and Brown, Albert E.: The Results of an Investigation at High Subsonic Speeds to Determine the Lateral-Control and Hinge-Moment Characteristics of a Spoiler-Slot-Deflector Configuration on a 35° Sweptback Wing. NACA RM L57C20, 1957.

8. DeYoung, John: Theoretical Antisymmetric Span Loading for Wings of Arbitrary Plan Form at Subsonic Speeds. NACA Rep. 1056, 1951. (Supersedes NACA TN 2140.)

9. DeYoung, John: Theoretical Symmetric Span Loading Due to Flap Deflection for Wings of Arbitrary Plan Form at Subsonic Speeds. NACA Rep. 1071, 1952. (Supersedes NACA TN 2278.)

[redacted]

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 0° AND TAPER RATIO OF 1

(a) Plain wing

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.3354	.0236	.0143	.0382	-.0002
-2	-.1932	.0181	.0189	.0212	-.0012
0	-.0383	.0163	.0176	.0039	-.0018
2	.0930	.0191	.0156	-.0120	-.0013
4	.2296	.0318	.0098	-.0282	.0010
6	.3846	.0499	.0065	-.0460	.0038
8	.5304	.0817	.0195	-.0645	.0085
10	.6397	.1298	.0541	-.0793	.0140
12	.6944	.1751	.0879	-.0886	.0198
16	.7218	.2450	.1211	-.0952	.0288
20	.7309	.3131	.1329	-.0961	.0375
M = 0.80					
-4	-.4170	.0343	.0198	.0463	.0015
-2	-.2202	.0171	.0220	.0242	-.0004
0	-.0418	.0116	.0132	.0048	-.0013
2	.1181	.0178	.0088	-.0141	-.0007
4	.3050	.0276	.0062	-.0352	.0013
6	.4809	.0508	.0044	-.0562	.0047
8	.6421	.0919	.0176	-.0758	.0098
10	.7159	.1317	.0527	-.0874	.0158
12	.7282	.1715	.0941	-.0912	.0220
16	.7651	.2437	.1288	-.0958	.0315
20	.7970	.3246	.1459	-.0994	.0412
M = 0.85					
-4	-.4469	.0401	.0123	.0501	.0021
-2	-.2511	.0172	.0239	.0272	-.0003
0	-.0369	.0103	.0140	.0045	-.0013
2	.1405	.0149	.0082	-.0158	-.0003
4	.3478	.0264	.0041	-.0394	.0021
6	.5321	.0539	.0173	-.0611	.0060
8	.6703	.0963	.0391	-.0809	.0118
10	.7855	.1376	.0576	-.0957	.0181
12	.8431	.1869	.0844	-.1045	.0249
16	.8085	.2523	.1379	-.0998	.0333
20	.8431	.3326	.1548	-.1026	.0431
M = 0.90					
-4	-.4772	.0488	.0117	.0532	.0027
-2	-.2637	.0217	.0164	.0293	-.0001
0	-.0305	.0108	.0175	.0034	-.0011
2	.1547	.0152	.0132	-.0179	.0001
4	.3617	.0271	.0179	-.0410	.0024
6	.5687	.0629	.0545	-.0662	.0072
8	.7212	.1052	.0818	-.0855	.0136
10	.8367	.1508	.1071	-.1008	.0206
12	.9239	.1964	.1110	-.1123	.0281
16	.8847	.2690	.1518	-.1082	.0362
20	.9173	.3580	.1810	-.1101	.0465

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4531	.0567	.0414	.0512	.0016
-2	-.2773	.0258	.0067	.0301	.0004
0	-.0290	.0134	-.0170	.0034	-.0008
2	.1366	.0206	-.0318	-.0159	.0006
4	.3538	.0330	-.0503	-.0230	.0030
6	.5607	.0670	-.0909	-.0638	.0082
8	.7262	.1123	-.1168	-.0842	.0147
10	.8504	.1576	-.1390	-.0992	.0219
12	.9849	.2143	-.1774	-.1152	.0306
16	.1545	.3327	-.1959	-.1382	.0467
20	.0801	.4018	-.2144	-.1329	.0543
M = 1.00					
-4	-.4429	.0640	.0495	.0481	.0039
-2	-.2452	.0345	.0184	.0268	.0011
0	-.0475	.0246	-.0071	.0046	.0002
2	.1305	.0276	-.0283	-.0147	.0013
4	.3184	.0404	-.0565	-.0367	.0036
6	.5062	.0689	-.0883	-.0579	.0081
8	.6644	.1083	-.1187	-.0762	.0139
10	.8028	.1526	-.1456	-.0921	.0207
12	.9215	.2068	-.1731	-.1070	.0286
16	.1311	.3249	-.2212	-.1338	.0457
20	.2695	.4578	-.2367	-.1524	.0654
M = 1.05					
-4	-.3969	.0567	.0475	.0447	.0038
-2	-.2355	.0331	.0183	.0257	.0014
0	-.0456	.0236	-.0034	.0044	.0003
2	.1253	.0426	-.0285	-.0154	.0012
4	.3058	.0378	-.0557	-.0343	.0038
6	.4767	.0643	-.0848	-.0540	.0078
8	.6381	.1040	-.1120	-.0732	.0135
10	.7616	.1466	-.1371	-.0872	.0198
12	.8945	.1986	-.1663	-.1025	.0274
16	.0978	.3120	-.2206	-.1275	.0441
20	.2573	.4539	-.2599	-.1490	.0646
M = 1.10					
-4	-.3925	.0530	.0459	.0438	.0039
-2	-.2183	.0320	.0177	.0248	.0015
0	-.0385	.0210	-.0052	.0041	.0003
2	.1302	.0228	-.0275	-.0134	.0013
4	.2862	.0365	-.0518	-.0330	.0037
6	.4512	.0621	.0518	-.0515	.0077
8	.5980	.0959	-.1049	-.0683	.0131
10	.7356	.1397	-.1337	-.0836	.0193
12	.8548	.1918	-.1619	-.0983	.0266
16	.0492	.3041	-.2111	-.1225	.0424
20	.1960	.4292	-.2379	-.1404	.0623

[redacted]

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 0° AND TAPER RATIO OF 1 - Continued

(b) Full-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 0.50$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.7838	.1618	.0590	.0896	.0205
-2	-.7012	.1462	.0721	.0805	.0180
0	-.5819	.1316	.0846	.0666	.0162
2	-.4809	.1234	.0918	.0556	.0148
4	-.3836	.1151	.0964	.0443	.0139
6	-.2239	.1024	.0945	.0267	.0130
8	-.0587	.1033	.0918	.0085	.0125
10	.1523	.1252	.0676	-.0154	.0157
12	.2900	.1499	.0387	-.0327	.0195
16	.4369	.1992	.0000	-.0544	.0283
20	.5378	.2641	.0262	-.0673	.0358
M = 0.80					
-4	-.8847	.2017	.0797	.0961	.0231
-2	-.7162	.1690	.0731	.0798	.0196
0	-.5551	.1474	.0819	.0628	.0171
2	-.4411	.1382	.0930	.0511	.0158
4	-.3271	.1259	.1018	.0376	.0143
6	-.1660	.1185	.1072	.0197	.0134
8	.0198	.1197	.1049	.0006	.0135
10	.2429	.1536	.0708	-.0244	.0191
12	.3172	.1629	.0500	-.0365	.0204
16	.4411	.2141	.0190	-.0541	.0282
20	.5526	.2708	.0186	-.0671	.0353
M = 0.85					
-4	-.8978	.2102	.0928	.0969	.0241
-2	-.7470	.1784	.0829	.0816	.0213
0	-.5196	.1525	.0788	.0588	.0183
2	-.4106	.1450	.0974	.0481	.0177
4	-.2830	.1351	.1090	.0340	.0165
6	-.1137	.1294	.1194	.0163	.0160
8	.0835	.1409	.1132	-.0038	.0174
10	.2737	.1629	.0746	-.0270	.0208
12	.3549	.1900	.0555	-.0393	.0250
16	.4477	.2333	.0269	-.0530	.0314
20	.5405	.2876	.0083	-.0644	.0384
M = 0.90					
-4	-.8416	.2183	.0927	.0924	.0250
-2	-.7603	.1964	.0942	.0820	.0232
0	-.5449	.1789	.0981	.0628	.0225
2	-.4087	.1679	.1099	.0487	.0211
4	-.2549	.1499	.1158	.0324	.0193
6	-.0571	.1444	.1209	.0149	.0186
8	.1516	.1570	.1040	-.0109	.0204
10	.3164	.1772	.0824	-.0320	.0238
12	.4263	.2046	.0550	-.0461	.0279
16	.5252	.2511	.0137	-.0604	.0346
20	.5977	.3052	.0196	-.0694	.0417

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.7949	.2228	.0913	.0883	.0268
-2	-.6802	.1943	.0746	.0754	.0238
0	-.4507	.1735	.0541	.0525	.0218
2	-.3046	.1631	.0652	.0377	.0208
4	-.1586	.1553	.0746	.0225	.0199
6	.0292	.1579	.0820	.0021	.0202
8	.2692	.1761	.0522	-.0247	.0231
10	.4110	.1984	.0410	-.0416	.0266
12	.5300	.2306	.0280	-.0568	.0314
16	.6239	.2794	-.0093	-.0716	.0390
20	.6552	.3262	-.0354	-.0765	.0447
M = 1.00					
-4	-.7401	.2230	.0748	.0827	.0273
-2	-.6204	.1882	.0588	.0687	.0236
0	-.4309	.1634	.0463	.0495	.0211
2	-.2753	.1574	.0499	.0335	.0203
4	-.1416	.1485	.0563	.0176	.0192
6	.0778	.1554	.0581	-.0043	.0201
8	.2972	.1758	.0339	-.0290	.0231
10	.4369	.2006	.0135	-.0458	.0273
12	.5625	.2379	-.0071	-.0611	.0323
16	.7361	.3019	-.0410	-.0834	.0420
20	.8957	.4012	-.0820	-.1021	.0545
M = 1.05					
-4	-.7149	.2180	.0719	.0794	.0265
-2	-.6056	.1832	.0582	.0668	.0229
0	-.4331	.1594	.0479	.0489	.0204
2	-.2606	.1546	.0462	.0315	.0197
4	-.1073	.1450	.0548	.0151	.0187
6	.1035	.1536	.0507	-.0080	.0197
8	.3047	.1713	.0274	-.0302	.0231
10	.4389	.1975	.0086	-.0455	.0270
12	.5443	.2300	-.0103	-.0594	.0313
16	.7264	.2996	-.0479	-.0827	.0369
20	.8893	.3903	-.0890	-.1027	.0538
M = 1.10					
-4	-.7145	.2138	.0728	.0778	.0261
-2	-.5794	.1783	.0579	.0645	.0179
0	-.4368	.1539	.0489	.0487	.0195
2	-.2517	.1493	.0446	.0309	.0192
4	-.1129	.1401	.0529	.0146	.0184
6	.1185	.1493	.0446	-.0106	.0198
8	.2851	.1700	.0232	-.0304	.0229
10	.4054	.1954	.0060	-.0445	.0271
12	.5164	.2295	-.0132	-.0580	.0314
16	.6830	.2940	-.0463	-.0793	.0403
20	.8589	.3862	-.0900	-.0999	.0533

[redacted]

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 0° AND TAPER RATIO OF 1 - Continued

(c) Half-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 0.50$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.5908	.0929	.0291	.0582	.0063
-2	-.4730	.0785	.0324	.0435	.0046
0	-.3371	.0686	.0408	.0287	.0038
2	-.2284	.0641	.0473	.0171	.0031
4	-.1015	.0614	.0460	.0016	.0033
6	.0580	.0659	.0453	-.0164	.0038
8	.2429	.0875	.0324	-.0380	.0076
10	.4241	.1200	.0000	-.0590	.0129
12	.5473	.1552	.0317	-.0728	.0268
16	.6325	.2193	.0693	-.0860	.0281
20	.6833	.2887	.0920	-.0903	.0376
M = 0.80					
-4	-.6996	.1175	.0393	.0698	.0078
-2	-.5284	.0920	.0385	.0494	.0054
0	-.3571	.0773	.0481	.0300	.0038
2	-.2397	.0725	.0568	.0170	.0032
4	-.0881	.0676	.0612	.0006	.0036
6	.0954	.0719	.0629	-.0201	.0046
8	.3033	.0920	.0538	-.0431	.0086
10	.4746	.1236	.0066	-.0647	.0143
12	.5651	.1602	.0293	-.0750	.0201
16	.6433	.2180	.0677	-.0832	.0286
20	.7192	.2941	.0983	-.0917	.0394
M = 0.85					
-4	-.7355	.1272	.0491	.0736	.0087
-2	-.5637	.0975	.0450	.0530	.0059
0	-.3414	.0787	.0512	.0290	.0041
2	-.2200	.0730	.0594	.0151	.0038
4	-.0596	.0690	.0639	-.0024	.0040
6	.1352	.0759	.0667	-.0247	.0057
8	.3712	.0987	.0483	-.0508	.0105
10	.5476	.1329	.0205	-.0732	.0163
12	.5820	.1631	.0246	-.0771	.0210
16	.6622	.2270	.0716	-.0848	.0297
20	.7538	.3057	.1085	-.0950	.0417
M = 0.90					
-4	-.7063	.1284	.0619	.0718	.0093
-2	-.5763	.0987	.0569	.0557	.0062
0	-.3488	.0825	.0554	.0304	.0048
2	-.1972	.0771	.0631	.0139	.0044
4	-.0238	.0734	.0712	-.0050	.0046
6	.2145	.0825	.0650	-.0323	.0074
8	.4420	.1084	.0348	-.0583	.0123
10	.5828	.1392	.0108	-.0770	.0179
12	.7128	.1834	.0155	-.0939	.0253
16	.7128	.2379	.0801	-.0898	.0321
20	.7995	.3193	.1219	-.1002	.0437

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.6851	.1424	.0882	.0687	.0109
-2	-.5267	.1117	.0698	.0518	.0079
0	-.3354	.0860	.0526	.0296	.0056
2	-.1461	.0784	.0478	.0093	.0055
4	.0494	.0784	.0515	-.0123	.0060
6	.2860	.0886	.0386	-.0405	.0094
8	.4609	.1168	.0092	-.0617	.0143
10	.6254	.1542	-.0257	-.0810	.0206
12	.7386	.1962	-.0515	-.0958	.0275
16	.9546	.2899	-.1029	-.1216	.0430
20	.9649	.3616	-.1617	-.1187	.0523
M = 1.00					
-4	-.6322	.1461	.0746	.0648	.0115
-2	-.4648	.1118	.0549	.0472	.0080
0	-.2876	.0873	.0387	.0270	.0059
2	-.1004	.0775	.0317	.0067	.0057
4	.1261	.0799	.0317	-.0177	.0061
6	.3230	.0946	.0056	-.0438	.0104
8	.5003	.1240	-.0296	-.0641	.0152
10	.6381	.1584	-.0542	-.0803	.0210
12	.7662	.2040	-.0845	-.0958	.0282
16	.9730	.2971	-.1337	-.1201	.0434
20	.1384	.4226	-.1830	-.1417	.0614
M = 1.05					
-4	-.5911	.1401	.0675	.0621	.0117
-2	-.4457	.1086	.0472	.0450	.0084
0	-.2663	.0860	.0358	.0251	.0063
2	-.0963	.0757	.0290	.0065	.0057
4	.1303	.0790	.0189	-.0191	.0066
6	.3286	.0968	-.0101	-.0420	.0105
8	.4986	.1251	-.0405	-.0631	.0154
10	.6308	.1589	-.0675	-.0792	.0205
12	.7441	.2012	-.0911	-.0928	.0271
16	.9405	.2943	-.1383	-.1164	.0416
20	.1293	.4259	-.2004	-.1404	.0607
M = 1.10					
-4	-.5762	.1362	.0671	.0596	.0117
-2	-.4303	.1071	.0489	.0428	.0085
0	-.2662	.0844	.0371	.0244	.0066
2	-.0930	.0740	.0313	.0070	.0058
4	.1167	.0785	.0163	-.0187	.0069
6	.3082	.0958	-.0143	-.0414	.0107
8	.4723	.1239	-.0424	-.0607	.0152
10	.6090	.1589	-.0665	-.0771	.0207
12	.7184	.2034	-.0912	-.0912	.0269
16	.9080	.2932	-.1368	-.1130	.0406
20	.0721	.4158	-.1922	-.1349	.0585

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 0° AND TAPER RATIO OF 1 - Continued

(d) Half-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 0.75$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.5871	.1140	.0296	.0579	.0081
-2	-.4454	.0905	.0351	.0420	.0065
0	-.3145	.0833	.0409	.0261	.0053
2	-.2181	.0815	.0513	.0146	.0050
4	-.0927	.0805	.0539	.0006	.0050
6	.0545	.0833	.0546	-.0167	.0058
8	.2363	.1077	.0419	-.0378	.0098
10	.4145	.1376	.0104	-.0573	.0151
12	.5181	.1720	.0182	-.0708	.0203
16	.5926	.2308	.0572	-.0806	.0292
20	.6399	.3005	.0757	-.0862	.0385
M = 0.80					
-4	-.6872	.1283	.0285	.0683	.0100
-2	-.4712	.0984	.0195	.0446	.0067
0	-.3068	.0868	.0360	.0256	.0056
2	-.1816	.0825	.0485	.0118	.0052
4	-.0393	.0794	.0568	-.0038	.0052
6	.1252	.0874	.0629	-.0240	.0068
8	.3313	.1088	.0496	-.0473	.0112
10	.4663	.1393	.0057	-.0633	.0163
12	.5252	.1717	.0149	-.0721	.0213
16	.5988	.2334	.0498	-.0799	.0302
20	.6676	.3116	.0750	-.0878	.0405
M = 0.85					
-4	-.7219	.1362	.0409	.0722	.0103
-2	-.4989	.1030	.0224	.0472	.0071
0	-.3058	.0893	.0351	.0256	.0058
2	-.1724	.0836	.0499	.0108	.0056
4	-.0207	.0801	.0594	-.0059	.0058
6	.1609	.0904	.0635	-.0276	.0076
8	.3793	.1133	.0468	-.0518	.0121
10	.5288	.1454	.0216	-.0705	.0176
12	.5563	.1774	.0146	-.0744	.0224
16	.6207	.2392	.0528	-.0817	.0313
M = 0.90					
-4	-.6559	.1313	.0467	.0662	.0098
-2	-.5251	.1031	.0380	.0504	.0070
0	-.3072	.0900	.0399	.0267	.0055
2	-.1656	.0846	.0539	.0110	.0052
4	-.0065	.0792	.0623	-.0062	.0055
6	.2048	.0922	.0574	-.0313	.0081
8	.4118	.1139	.0341	-.0545	.0126
10	.5535	.1497	.0156	-.0730	.0184
12	.6733	.1931	.0049	-.0877	.0251
16	.6624	.2408	.0613	-.0851	.0319
20	.7822	.3255	.1051	-.0970	.0438

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.6230	.1391	.0573	.0634	.0106
-2	-.4926	.1134	.0462	.0482	.0076
0	-.2856	.0979	.0388	.0255	.0062
2	-.1366	.0927	.0444	.0083	.0060
4	.0600	.0876	.0518	-.0129	.0064
6	.2773	.1010	.0370	-.0377	.0098
8	.4429	.1237	.0129	-.0583	.0147
10	.5878	.1597	-.0148	-.0767	.0206
12	.7120	.2040	-.0425	-.0915	.0274
16	.8983	.2968	-.0851	-.1148	.0416
20	.9604	.3864	-.1387	-.1234	.0444
M = 1.00					
-4	-.6055	.1478	.0636	.0620	.0118
-2	-.4709	.1192	.0495	.0468	.0085
0	-.2790	.0985	.0318	.0249	.0065
2	-.1009	.0906	.0318	.0056	.0063
4	.1167	.0906	.0354	-.0183	.0071
6	.3047	.1034	.0141	-.0412	.0105
8	.4630	.1330	-.0230	-.0605	.0154
10	.6015	.1675	-.0477	-.0776	.0212
12	.7302	.2118	-.0707	-.0925	.0280
16	.9182	.3005	-.1131	-.1145	.0423
20	.0844	.4187	-.1556	-.1359	.0607
M = 1.05					
-4	-.5981	.1465	.0617	.0605	.0118
-2	-.4652	.1182	.0472	.0458	.0088
0	-.2848	.0964	.0329	.0249	.0067
2	-.1044	.0879	.0278	.0054	.0062
4	.1139	.0898	.0268	-.0184	.0072
6	.3038	.1040	.0014	-.0406	.0108
8	.4500	.1304	-.0258	-.0590	.0154
10	.5848	.1654	-.0495	-.0745	.0209
12	.6835	.2032	-.0716	-.0878	.0271
16	.8828	.2930	-.1123	-.1109	.0412
20	.0252	.4065	-.1547	-.1304	.0586
M = 1.10					
-4	-.5776	.1397	.0613	.0584	.0116
-2	-.4438	.1123	.0465	.0432	.0085
0	-.2659	.0940	.0341	.0240	.0066
2	-.0917	.0849	.0301	.0046	.0061
4	.0367	.0895	.0193	-.0195	.0075
6	.2934	.1050	-.0036	-.0413	.0113
8	.4309	.1324	-.0249	-.0570	.0150
10	.5501	.1671	-.0495	-.0722	.0204
12	.6601	.2054	-.0698	-.0851	.0262
16	.8344	.2922	-.1084	-.1068	.0394
20	.0012	.4063	-.1527	-.1269	.0566

[redacted]

TABLE I.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 0° AND TAPER RATIO OF 1 - Concluded

(e) Half-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 1.00$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.5102	.0998	.0339	.0523	.0078
-2	-.3772	.0898	.0280	.0367	.0067
0	-.2551	.0862	.0352	.0222	.0062
2	-.1640	.0816	.0417	.0117	.0058
4	-.0547	.0816	.0456	-.0016	.0057
6	.0692	.0862	.0514	-.0164	.0058
8	.2186	.1070	.0449	-.0346	.0092
10	.3826	.1361	.0189	-.0538	.0143
12	.4737	.1678	.0052	-.0663	.0195
16	.5466	.2250	.0365	-.0764	.0281
20	.5921	.2857	.0547	-.0811	.0365
M = 0.80					
-4	-.5535	.1182	.0202	.0571	.0084
-2	-.4084	.1010	.0180	.0394	.0064
0	-.2583	.0919	.0308	.0223	.0057
2	-.1476	.0888	.0396	.0097	.0058
4	-.0086	.0857	.0457	-.0057	.0061
6	.1415	.0919	.0523	-.0240	.0070
8	.3137	.1133	.0396	-.0444	.0110
10	.4613	.1439	.0026	-.0617	.0163
12	.5412	.1794	.0180	-.0727	.0215
16	.5658	.2315	.0400	-.0769	.0289
20	.6396	.2970	.0593	-.0843	.0382
M = 0.85					
-4	-.6266	.1290	.0329	.0645	.0095
-2	-.4262	.1032	.0165	.0418	.0069
0	-.2534	.0935	.0305	.0223	.0061
2	-.1382	.0889	.0395	.0085	.0063
4	.0069	.0849	.0477	-.0079	.0061
6	.1728	.0946	.0531	-.0272	.0080
8	.3570	.1176	.0424	-.0491	.0122
10	.5068	.1479	.0181	-.0677	.0173
12	.5828	.1824	.0189	-.0765	.0227
16	.5989	.2380	.0457	-.0793	.0303
20	.6680	.3039	.1395	-.0878	.0404
M = 0.90					
-4	-.6535	.1356	.0424	.0671	.0104
-2	-.4792	.1084	.0253	.0457	.0077
0	-.2614	.0965	.0319	.0226	.0066
2	-.1307	.0900	.0413	.0082	.0066
4	.0283	.0900	.0522	-.0091	.0067
6	.2287	.1030	.0522	-.0323	.0094
8	.4139	.1247	.0335	-.0546	.0137
10	.5554	.1573	.0144	-.0731	.0194
12	.6644	.1985	.0043	-.0877	.0259
16	.6426	.2473	.0510	-.0824	.0318
20	.7188	.3232	.0802	-.0933	.0428

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.5998	.1442	.0495	.0638	.0108
-2	-.4654	.1164	.0370	.0459	.0081
0	-.2523	.1030	.0336	.0214	.0074
2	-.1241	.0978	.0443	.0058	.0071
4	.0517	.0978	.0532	-.0124	.0074
6	.2689	.1061	.0429	-.0370	.0104
8	.4344	.1370	.0174	-.0588	.0156
10	.5791	.1751	-.0103	-.0767	.0220
12	.6826	.2142	-.0281	-.0900	.0283
16	.8377	.2986	-.0680	-.1080	.0246
20	.8273	.3656	-.1168	-.1080	.0491
M = 1.00					
-4	-.5930	.1526	.0597	.0623	.0117
-2	-.4744	.1279	.0438	.0457	.0090
0	-.2471	.1083	.0314	.0210	.0077
2	-.0890	.1033	.0385	.0042	.0077
4	.0988	.1033	.0431	-.0178	.0080
6	.3163	.1181	.0194	-.0430	.0119
8	.4645	.1476	-.0127	-.0609	.0167
10	.5930	.1801	-.0374	-.0772	.0224
12	.7116	.2244	-.0657	-.0917	.0293
16	.8896	.3149	-.1063	-.1148	.0431
20	.0675	.4311	-.1522	-.1354	.0605
M = 1.05					
-4	-.5789	.1512	.0658	.0605	.0121
-2	-.4460	.1276	.0478	.0439	.0091
0	-.2467	.1087	.0312	.0215	.0075
2	-.0759	.0992	.0353	.0033	.0074
4	.1234	.1039	.0346	-.0195	.0079
6	.3132	.1210	.0047	-.0431	.0121
8	.4555	.1465	-.0190	-.0601	.0164
10	.5694	.1795	-.0437	-.0748	.0218
12	.6833	.2202	-.0671	-.0878	.0280
16	.8636	.3071	-.1089	-.1112	.0420
20	.0249	.4205	-.1529	-.1307	.0586
M = 1.10					
-4	-.5591	.1515	.0652	.0585	.0117
-2	-.4216	.1214	.0478	.0421	.0090
0	-.2383	.1031	.0318	.0212	.0074
2	-.0733	.0958	.0324	.0027	.0072
4	.1283	.1050	.0269	-.0204	.0080
6	.2933	.1232	.0013	-.0416	.0118
8	.4491	.1533	-.0265	-.0596	.0160
10	.5591	.1825	-.0491	-.0738	.0211
12	.6599	.2236	-.0707	-.0863	.0272
16	.8304	.3085	-.1084	-.1077	.0399
20	.9716	.4198	-.1500	-.1262	.0281

[redacted]

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 15° AND TAPER RATIO OF 1

(a) Plain wing

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.3430	.0309	.0059	.0381	.0015
-2	-.2208	.0263	.0013	.0242	.0007
0	-.0639	.0227	.0072	.0069	.0003
2	.0730	.0263	.0104	-.0100	.0003
4	.1952	.0354	.0202	-.0250	.0013
6	.3412	.0491	.0300	-.0412	.0040
8	.4963	.0836	.0300	-.0591	.0083
10	.6130	.1226	.0033	-.0736	.0138
12	.6969	.1671	.0306	-.0837	.0200
16	.7334	.2307	.0691	-.0872	.0280
20	.7280	.2943	.0776	-.0853	.0347
M = 0.80					
-4	-.4105	.0381	.0145	.0460	.0023
-2	-.2441	.0239	.0053	.0270	.0008
0	-.0530	.0178	.0035	.0057	.0001
2	.0949	.0196	.0128	-.0118	.0003
4	.2614	.0270	.0264	-.0306	.0024
6	.4401	.0454	.0357	-.0513	.0054
8	.6214	.0810	.0335	-.0731	.0103
10	.7446	.1209	.0084	-.0868	.0161
12	.7323	.1578	.0405	-.0853	.0208
16	.7940	.2326	.0727	-.0908	.0299
20	.8014	.3002	.0881	-.0908	.0377
M = 0.85					
-4	-.4454	.0425	.0120	.0492	.0025
-2	-.2608	.0247	.0087	.0281	.0011
0	-.0646	.0167	.0037	.0059	.0000
2	.1085	.0190	.0169	-.0132	.0009
4	.2885	.0270	.0284	-.0336	.0030
6	.4892	.0483	.0268	-.0567	.0064
8	.6623	.0856	.0037	-.0792	.0119
10	.8008	.1275	.0132	-.0954	.0183
12	.8585	.1718	.0317	-.0984	.0237
16	.8308	.2378	.0788	-.0941	.0314
20	.8423	.3091	.0985	-.0964	.0400
M = 0.90					
-4	-.4753	.0478	.0097	.0519	.0031
-2	-.2725	.0250	.0043	.0291	.0010
0	-.0610	.0152	.0051	.0062	.0001
2	.1308	.0152	.0175	-.0147	.0010
4	.3205	.0261	.0195	-.0375	.0030
6	.5232	.0510	.0035	-.0607	.0072
8	.6911	.0912	.0362	-.0816	.0131
10	.8219	.1324	.0600	-.0975	.0196
12	.9309	.1780	.0709	-.1105	.0264
16	.8982	.2464	.0822	-.1004	.0332
20	.9527	.3354	.1204	-.1098	.0447

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4515	.0557	.0426	.0520	.0039
-2	-.2651	.0330	.0226	.0300	.0015
0	-.0580	.0175	.0104	.0060	.0004
2	.1450	.0217	.0000	-.0163	.0015
4	.3252	.0351	-.0137	-.0376	.0036
6	.5012	.0557	-.0374	-.0589	.0076
8	.6669	.0969	-.0755	-.0791	.0135
10	.8119	.1382	-.1018	-.0961	.0202
12	.9362	.1877	-.1247	-.1121	.0279
16	.1474	.2929	-.1680	-.1376	.0439
20	.1267	.3754	-.1399	-.1245	.0511
M = 1.00					
-4	-.4214	.0581	.0495	.0486	.0051
-2	-.2434	.0355	.0247	.0276	.0022
0	-.0356	.0266	.0078	.0041	.0014
2	.1326	.0266	-.0035	-.0147	.0027
4	.3007	.0374	-.0205	-.0349	.0047
6	.4590	.0581	-.0474	-.0552	.0087
8	.6173	.0906	-.0700	-.0737	.0137
10	.7459	.1290	-.0940	-.0891	.0195
12	.8745	.1783	-.1181	-.1044	.0264
16	.0882	.2798	-.1605	-.1298	.0418
20	.2623	.4127	-.2043	-.1515	.0607
M = 1.05					
-4	-.4046	.0558	.0482	.0462	.0047
-2	-.2242	.0359	.0231	.0267	.0026
0	-.0342	.0255	.0088	.0039	.0017
2	.1178	.0255	-.0007	-.0132	.0026
4	.2888	.0369	-.0197	-.0335	.0049
6	.4502	.0586	-.0434	-.0529	.0085
8	.5927	.0889	-.0645	-.0703	.0130
10	.7162	.1267	-.0883	-.0846	.0187
12	.8397	.1740	-.1113	-.0992	.0255
16	.0448	.2733	-.1527	-.1236	.0401
20	.2044	.3991	-.1962	-.1445	.0580
M = 1.10					
-4	-.3812	.0520	.0445	.0446	.0047
-2	-.2218	.0329	.0216	.0257	.0025
0	-.0330	.0246	.0072	.0116	.0017
2	.1136	.0265	-.0026	-.0135	.0025
4	.2603	.0383	-.0170	-.0315	.0044
6	.4069	.0584	-.0393	-.0496	.0075
8	.5627	.0903	-.0675	-.0676	.0122
10	.6818	.1268	-.0845	-.0816	.0174
12	.7918	.1725	-.1074	-.0961	.0234
16	.0081	.2729	-.1467	-.1196	.0372
20	.1620	.3869	-.1860	-.1391	.0536

[redacted]

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 15° AND TAPER RATIO OF 1 - Continued

(b) Half-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 0.50$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.6069	.0920	.0078	.0627	.0078
-2	-.4837	.0749	.0000	.0487	.0061
0	-.3660	.0658	.0097	.0332	.0053
2	-.2482	.0604	.0149	.0208	.0050
4	-.1123	.0577	.0227	.0053	.0046
6	.0290	.0595	.0233	-.0115	.0045
8	.2047	.0803	.0252	-.0320	.0070
10	.3787	.1137	.0058	-.0515	.0122
12	.5163	.1470	.0227	-.0652	.0179
16	.6414	.2138	.0563	-.0769	.0268
20	.6613	.2769	.0693	-.0794	.0341
M = 0.80					
-4	-.7272	.1115	.0026	.0749	.0089
-2	-.5240	.0866	.0079	.0528	.0064
0	-.3673	.0738	.0232	.0350	.0051
2	-.2498	.0689	.0332	.0214	.0047
4	-.1151	.0628	.0407	.0057	.0047
6	.0563	.0664	.0455	-.0143	.0048
8	.2522	.0853	.0451	-.0367	.0083
10	.4236	.1164	.0144	-.0545	.0134
12	.5362	.1499	.0153	-.0656	.0181
16	.6684	.2152	.0503	-.0782	.0268
20	.7248	.2883	.0752	-.0845	.0358
M = 0.85					
-4	-.7448	.1192	.0176	.0775	.0093
-2	-.5431	.0907	.0119	.0544	.0067
0	-.3483	.0742	.0299	.0338	.0054
2	-.2383	.0690	.0389	.0200	.0050
4	-.0848	.0639	.0479	.0033	.0049
6	.0871	.0685	.0565	-.0167	.0054
8	.2933	.0867	.0536	-.0398	.0091
10	.4881	.1181	.0319	-.0624	.0143
12	.5614	.1500	.0111	-.0673	.0189
16	.7035	.2213	.0540	-.0820	.0285
20	.7746	.2944	.0848	-.0899	.0379
M = 0.90					
-4	-.7168	.1283	.0379	.0755	.0098
-2	-.5501	.0987	.0298	.0560	.0071
0	-.3508	.0819	.0395	.0338	.0057
2	-.2209	.0739	.0476	.0198	.0054
4	-.0585	.0669	.0619	.0013	.0051
6	.1364	.0739	.0689	-.0210	.0061
8	.3638	.0933	.0507	-.0478	.0106
10	.5263	.1256	.0244	-.0673	.0160
12	.6714	.1634	.0008	-.0849	.0223
16	.7342	.2281	.0608	-.0859	.0304
20	.8186	.3084	.0979	-.0957	.0406

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.6419	.1362	.0445	.0708	.0111
-2	-.4732	.1065	.0195	.0502	.0079
0	-.2921	.0860	.0176	.0277	.0064
2	-.1276	.0804	.0232	.0109	.0065
4	.0267	.0758	.0379	-.0070	.0061
6	.2222	.0860	.0636	-.0305	.0080
8	.3971	.1070	.0268	-.0525	.0117
10	.5514	.1373	-.0099	-.0710	.0169
12	.7057	.1834	-.0393	-.0909	.0237
16	.9629	.2848	-.1055	-.1209	.0392
20	.0205	.3667	-.1375	-.1226	.0492
M = 1.00					
-4	-.5737	.1321	.0309	.0634	.0110
-2	-.4224	.1042	.0098	.0449	.0083
0	-.2397	.0866	.0021	.0244	.0070
2	-.1022	.0783	.0126	.0079	.0066
4	.0550	.0783	.0246	-.0098	.0064
6	.2613	.0910	.0232	-.0342	.0092
8	.4381	.1399	-.0084	-.0560	.0135
10	.5757	.1458	-.0330	-.0745	.0186
12	.7132	.1839	-.0646	-.0902	.0249
16	.9293	.2719	-.1137	-.1161	.0383
20	.1238	.3913	-.1699	-.1406	.0560
M = 1.05					
-4	-.5510	.1282	.0297	.0617	.0109
-2	-.4001	.1015	.0121	.0431	.0079
0	-.2397	.0836	.0054	.0238	.0065
2	-.0981	.0766	.0121	.0076	.0062
4	.0623	.0770	.0270	-.0110	.0061
6	.2321	.0921	.0162	-.0328	.0088
8	.4114	.1146	-.0115	-.0546	.0127
10	.5529	.1447	-.0351	-.0724	.0174
12	.6756	.1823	-.0593	-.0873	.0234
16	.8832	.2659	-.1092	-.1115	.0364
20	.0681	.3786	-.1598	-.1341	.0529
M = 1.10					
-4	-.5316	.1237	.0293	.0596	.0102
-2	-.3914	.0984	.0117	.0416	.0072
0	-.2494	.0825	.0059	.0245	.0058
2	-.0983	.0739	.0130	.0073	.0055
4	.0692	.0748	.0267	-.0114	.0057
6	.2513	.0920	.0130	-.0340	.0081
8	.4060	.1120	-.0117	-.0543	.0118
10	.5244	.1419	-.0364	-.0698	.0156
12	.6427	.1804	-.0579	-.0836	.0205
16	.8430	.2602	-.1034	-.1069	.0322
20	.0123	.3698	-.1607	-.1303	.0477

[redacted]

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 15° AND TAPER RATIO OF 1 - Continued

(c) Half-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 0.75$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.6085	.1004	.0058	.0607	.0076
-2	-.4451	.0823	.0065	.0437	.0056
0	-.3361	.0760	.0130	.0306	-.0118
2	-.2362	.0733	.0227	.0185	.0043
4	-.1272	.0724	.0305	.0058	.0043
6	.0182	.0733	.0344	-.0106	.0048
8	.1907	.0950	.0383	-.0314	.0075
10	.3542	.1248	.0149	-.0493	.0124
12	.4723	.1574	.0110	-.0610	.0169
16	.5813	.2198	.0415	-.0711	.0254
20	.6031	.2768	.0571	-.0737	.0325
M = 0.80					
-4	-.6359	.1125	.0114	.0643	.0083
-2	-.4493	.0923	.0009	.0448	.0062
0	-.3142	.0831	.0167	.0290	.0052
2	-.2087	.0776	.0298	.0162	.0048
4	-.0737	.0746	.0408	.0011	.0050
6	.0859	.0788	.0513	-.0166	.0056
8	.2553	.0978	.0496	-.0368	.0085
10	.4149	.1283	.0154	-.0532	.0138
12	.4910	.1595	.0031	-.0605	.0181
16	.5769	.2170	.0290	-.0692	.0259
20	.6506	.2848	.0557	-.0778	.0348
M = 0.85					
-4	-.6776	.1224	.0004	.0696	.0090
-2	-.4709	.0972	.0029	.0466	.0065
0	-.3078	.0863	.0172	.0283	.0054
2	-.1975	.0806	.0320	.0155	.0051
4	-.0528	.0766	.0443	-.0004	.0052
6	.1171	.0812	.0566	-.0201	.0062
8	.3124	.1029	.0534	-.0431	.0101
10	.4640	.1321	.0341	-.0614	.0044
12	.5053	.1607	.0004	-.0620	.0185
16	.6087	.2236	.0291	-.0726	.0270
20	.6891	.2893	.0624	-.0826	.0368
M = 0.90					
-4	-.6510	.1296	.0089	.0695	.0095
-2	-.5100	.1059	.0089	.0504	.0071
0	-.3147	.0924	.0244	.0290	.0060
2	-.1845	.0864	.0392	.0149	.0055
4	-.0369	.0789	.0516	-.0011	.0055
6	.1628	.0870	.0613	-.0236	.0068
8	.3581	.1091	.0485	-.0478	.0109
10	.5100	.1399	.0318	-.0663	.0158
12	.6076	.1734	.0171	-.0784	.0212
16	.6510	.2328	.0337	-.0754	.0283
20	.7487	.3058	.0744	-.1063	.0389

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.6290	.0703	.0306	.0664	.0111
-2	-.4619	.0570	.0177	.0468	.0081
0	-.2825	.0498	.0232	.0261	.0072
2	-.1237	.0467	.0306	.0108	.0069
4	.0103	.0441	.0472	-.0065	.0067
6	.2165	.0477	.0520	-.0300	.0090
8	.3918	.0595	.0343	-.0516	.0124
10	.5176	.0734	.0140	-.0683	.0172
12	.6560	.1880	-.0184	-.0844	.0245
16	.8520	.2691	-.0590	-.1067	.0372
20	.9345	.3554	-.1076	-.1138	.0486
M = 1.00					
-4	-.5752	.1393	.0246	.0621	.0112
-2	-.4235	.1128	.0088	.0440	.0084
0	-.2541	.0971	.0081	.0240	.0071
2	-.1103	.0902	.0204	.0094	.0067
4	.0591	.0883	.0359	-.0015	.0072
6	.2522	.0991	.0289	-.0332	.0098
8	.4038	.1216	.0046	-.0543	.0139
10	.5496	.1530	-.0225	-.0720	.0189
12	.6639	.1893	-.0458	-.0857	.0250
16	.8628	.2707	-.0855	-.1086	.0374
20	.0441	.3835	-.1355	-.1306	.1094
M = 1.05					
-4	-.5637	.1366	.0264	.0620	.0112
-2	-.3972	.1083	.0095	.0418	.0078
0	-.2497	.0951	.0074	.0232	.0067
2	-.1002	.0866	.0193	.0075	.0062
4	.0586	.0857	.0345	-.0105	.0066
6	.2478	.0998	.0230	-.0339	.0099
8	.4029	.1234	-.0007	-.0533	.0135
10	.5126	.1516	-.0233	-.0692	.0181
12	.6374	.1865	-.0456	-.0823	.0239
16	.8285	.2665	-.0835	-.1046	.0361
20	.0025	.3729	-.1301	-.1260	.0524
M = 1.10					
-4	-.5475	.1281	.0264	.0598	.0105
-2	-.3924	.0591	.0101	.0423	.0075
0	-.2281	.0445	.0082	.0223	.0061
2	-.0967	.0836	.0202	.0072	.0057
4	.0602	.0827	.0336	-.0105	.0061
6	.2372	.0972	.0205	-.0331	.0083
8	.3832	.1218	-.0020	-.0522	.0117
10	.5055	.1490	-.0225	-.0670	.0153
12	.6205	.1863	-.0430	-.0803	.0200
16	.7847	.2671	-.0799	-.1169	.0300
20	.9417	.3716	-.1233	-.1209	.0449

[redacted]

TABLE II.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 15° AND TAPER RATIO OF 1 - Concluded

(d) Half-span spoiler slot deflector; δ_s = -0.075c; δ_d/δ_s = 1.00

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.5464	.1079	.0033	.0574	.0083
-2	-.3825	.0916	.0033	-.0388	.0067
0	-.2732	.0898	.0182	.0256	.0062
2	-.1821	.0871	.0260	.0148	.0062
4	-.0820	.0852	.0364	.0025	.0057
6	.0455	.0871	.0443	-.0129	.0058
8	.1730	.1052	.0508	-.0295	.0082
10	.3370	.1351	.0351	-.0473	.0131
12	.4462	.1678	.0117	-.0585	.0181
16	.5191	.2186	.0091	-.0653	.0253
20	.5464	.2757	.0208	-.0692	.0325
M = 0.80					
-4	-.5539	.1201	.0167	.0594	.0084
-2	-.3939	.1017	.0053	.0405	.0066
0	-.2585	.0956	.0128	.0247	.0060
2	-.1600	.0913	.0246	.0129	.0060
4	-.0308	.0882	.0387	-.0021	.0060
6	.1046	.0938	.0510	-.0192	.0066
8	.2708	.1109	.0506	-.0373	.0098
10	.4246	.1434	.0246	-.0546	.0150
12	.4862	.1691	.0075	-.0611	.0189
16	.5329	.2212	.0048	-.0658	.0255
20	.5846	.2825	.0194	-.0725	.0337
M = 0.85					
-4	-.5992	.1268	.0119	.0633	.0091
-2	-.4148	.1067	.0078	.0422	.0072
0	-.2650	.0970	.0181	.0249	.0063
2	-.1544	.0912	.0276	.0118	.0063
4	-.0230	.0895	.0424	-.0030	.0062
6	.1268	.0952	.0552	-.0207	.0072
8	.3111	.1153	.0560	-.0426	.0108
10	.4494	.1440	.0354	-.0586	.0154
12	.5185	.1756	.0099	-.0639	.0200
16	.5531	.2272	.0049	-.0679	.0264
20	.6153	.2914	.0247	-.0758	.0354
M = 0.90					
-4	-.5986	.1311	.0043	.0654	.0099
-2	-.4244	.1095	.0016	.0436	.0080
0	-.2721	.1019	.0171	.0252	.0070
2	-.1415	.0932	.0319	.0114	.0070
4	-.0109	.0910	.0494	-.0045	.0066
6	.1632	.0964	.0611	-.0240	.0078
8	.3591	.1181	.0533	-.0477	.0120
10	.4897	.1474	.0385	-.0650	.0164
12	.5942	.1799	.0264	-.0762	.0219
16	.5877	.2341	.0070	-.0706	.0278
20	.6530	.2991	.0327	-.0800	.0368

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.5727	.1400	.0059	.0621	.0108
-2	-.4383	.1246	.0022	.0448	.0090
0	-.2585	.1091	.0188	.0237	.0082
2	-.1241	.1040	.0329	.0094	.0081
4	.0310	.1019	.0506	-.0078	.0080
6	.2068	.1091	.0576	-.0290	.0095
8	.3577	.1297	.0465	-.0487	.0132
10	.5066	.1606	.0225	-.0671	.0187
12	.6306	.2069	-.0089	-.0857	.0255
16	.8167	.2841	-.0392	-.1048	.0373
20	.7857	.3356	-.0598	-.0953	.0425
M = 1.00					
-4	-.5726	.1563	.0243	.0622	.0124
-2	-.4048	.1288	.0074	.0424	.0096
0	-.2271	.1140	.0173	.0215	.0087
2	-.0987	.1072	.0310	.0069	.0085
4	.0296	.1072	.0445	-.0091	.0083
6	.2271	.1190	.0445	-.0320	.0107
8	.3850	.1406	.0215	-.0522	.0146
10	.5233	.1701	-.0039	-.0700	.0197
12	.6417	.2055	-.0254	-.0839	.0253
16	.8195	.2841	-.0550	-.1045	.0370
20	.9675	.3893	-.0977	-.1248	.0527
M = 1.05					
-4	-.5498	.1567	.0241	.0604	.0119
-2	-.3981	.1331	.0098	.0416	.0092
0	-.2370	.1170	.0142	.0218	.0081
2	-.0948	.1095	.0291	.0067	.0075
4	.0569	.1095	.0444	-.0112	.0078
6	.2370	.1237	.0369	-.0331	.0104
8	.3887	.1473	.0146	-.0526	.0143
10	.5024	.1727	-.0081	-.0672	.0189
12	.6162	.2039	-.0268	-.0808	.0243
16	.7868	.2841	-.0589	-.1020	.0355
20	.9290	.3832	-.0945	-.1205	.0502
M = 1.10					
-4	-.5305	.1494	.0265	.0587	.0112
-2	-.3841	.1239	.0101	.0409	.0085
0	-.2286	.1084	.0124	.0213	.0074
2	-.0915	.1056	.0271	.0060	.0071
4	.0640	.1056	.0428	-.0119	.0071
6	.2378	.1239	.0330	-.0327	.0093
8	.3750	.1448	.0127	-.0515	.0125
10	.4847	.1721	-.0075	-.0656	.0167
12	.5853	.2040	-.0258	-.0780	.0209
16	.7591	.2860	-.0497	-.0984	.0305
20	.8963	.3816	-.0912	-.1172	.0443

TABLE III.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0

(a) Plain wing

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.3283	.0173	.0068	.0322	.0018
-2	-.2244	.0154	.0049	.0219	.0007
0	-.0821	.0163	.0024	.0072	.0003
2	.0347	.0218	.0034	-.0053	.0003
4	.1532	.0282	.0161	-.0172	.0007
6	.2846	.0509	.0181	-.0297	.0040
8	.4013	.0826	.0112	-.0390	.0083
10	.5016	.1199	.0200	-.0465	.0117
12	.5874	.1580	.0244	-.0515	.0153
16	.6859	.2316	.0416	-.0572	.0208
20	.7625	.3161	.0680	-.0606	.0267
M = 0.80					
-4	-.3646	.0221	.0149	.0352	.0021
-2	-.2353	.0123	.0119	.0232	.0005
0	-.0813	.0098	.0040	.0080	.0000
2	.0653	.0135	.0066	-.0074	.0000
4	.2082	.0251	.0129	-.0211	.0027
6	.3498	.0454	.0162	-.0342	.0050
8	.4668	.0767	.0218	-.0439	.0083
10	.5716	.1135	.0300	-.0511	.0116
12	.6405	.1503	.0399	-.0551	.0147
16	.7415	.2257	.0634	-.0608	.0205
20	.8056	.3042	.0941	-.0643	.0264
M = 0.85					
-4	-.3821	.0247	.0198	.0376	.0023
-2	-.2390	.0121	.0139	.0247	.0006
0	-.0843	.0086	.0046	.0085	.0000
2	.0797	.0109	.0068	-.0089	.0001
4	.2240	.0207	.0152	-.0227	.0025
6	.3717	.0448	.0170	-.0362	.0053
8	.4953	.0730	.0294	-.0459	.0088
10	.5934	.1092	.0377	-.0534	.0120
12	.6742	.1506	.0483	-.0573	.0153
16	.7712	.2242	.0764	-.0633	.0210
20	.8381	.3104	.1098	-.0676	.0278
M = 0.90					
-4	-.4287	.0310	.0360	.0421	.0024
-2	-.2625	.0152	.0220	.0272	.0006
0	-.0809	.0087	.0088	.0084	.0000
2	.0919	.0109	.0062	-.0097	.0004
4	.2493	.0218	.0193	-.0262	.0029
6	.4352	.0414	.0337	-.0431	.0062
8	.5337	.0762	.0469	-.0515	.0097
10	.6386	.1143	.0574	-.0581	.0132
12	.7239	.1552	.0703	-.0631	.0168
16	.8071	.2314	.0923	-.0674	.0226
20	.8945	.3212	.1301	-.0730	.0301

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4657	.0440	.0669	.0472	.0026
-2	-.2744	.0212	.0432	.0294	.0009
0	-.0852	.0129	.0145	.0085	-.0001
2	.0936	.0135	-.0128	-.0107	.0004
4	.2807	.0233	-.0440	-.0303	.0032
6	.4553	.0471	-.0705	-.0481	.0067
8	.6174	.0828	-.0905	-.0623	.0108
10	.7255	.1242	-.0989	-.0712	.0146
12	.8191	.1682	-.1059	-.0721	.0184
16	.9126	.2562	-.1254	-.0783	.0255
20	.9750	.3467	-.1488	-.0801	.0322
M = 1.00					
-4	-.4195	.0520	.0741	.0434	-.0001
-2	-.2405	.0277	.0426	.0264	.0002
0	-.0417	.0173	.0107	.0051	-.0005
2	.0974	.0223	-.0165	-.0102	.0005
4	.2664	.0312	-.0453	-.0281	.0030
6	.4354	.0544	-.0746	-.0460	.0058
8	.6043	.0916	-.1092	-.0616	.0104
10	.7534	.1351	-.1385	-.0749	.0152
12	.8826	.1905	-.1652	-.0426	.0208
16	.1013	.3058	-.1998	-.0494	.0312
20	.2285	.4256	-.2158	-.0519	.0417
M = 1.05					
-4	-.4051	.0557	.0717	.0407	.0007
-2	-.2274	.0352	.0430	.0236	.0002
0	-.0420	.0271	.0092	.0046	-.0006
2	.0917	.0295	-.0154	-.0093	.0000
4	.2542	.0400	-.0461	-.0265	.0023
6	.4166	.0628	-.0768	-.0437	.0051
8	.5791	.0971	-.1060	-.0584	.0090
10	.7128	.1399	-.1357	-.0715	.0140
12	.8562	.1922	-.1598	-.0828	.0196
16	.0434	.2988	-.1946	-.0952	.0293
20	.1887	.4301	-.2136	-.1064	.0420
M = 1.10					
-4	-.3725	.0441	.0682	.0384	.0020
-2	-.2157	.0271	.0371	.0226	.0002
0	-.0498	.0216	.0049	.0046	-.0007
2	.0940	.0225	-.0183	-.0098	.0000
4	.2268	.0386	-.0450	-.0248	.0018
6	.4112	.0638	-.0741	-.0422	.0047
8	.5495	.0959	-.1038	-.0557	.0086
10	.6970	.1395	-.1310	-.0690	.0136
12	.8261	.1923	-.1557	-.0796	.0190
16	.0068	.3002	-.1878	-.0916	.0290
20	.1174	.4214	-.2001	-.1023	.0411

[redacted]

TABLE III.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(b) Half-span spoiler slot deflector; δ_s = -0.075c; δ_d/δ_s = 0.50

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.6333	.1225	.0408	.0528	.0091
-2	-.5507	.1042	.0433	.0456	.0065
0	-.4314	.0932	.0448	.0357	.0045
2	-.3213	.0896	.0408	.0234	.0039
4	-.2203	.0905	.0310	.0113	.0040
6	-.0734	.0923	.0187	-.0022	.0045
8	.0698	.1088	.0103	-.0154	.0064
10	.2019	.1408	.0039	-.0259	.0096
12	.3176	.1773	.0039	-.0324	.0126
16	.5048	.2440	.0108	-.0446	.0193
20	.6333	.3199	.0290	-.0503	.0582
M = 0.80					
-4	-.6940	.1475	.0807	.0586	.0093
-2	-.6196	.1228	.0840	.0509	.0067
0	-.4957	.1074	.0840	.0395	.0040
2	-.3767	.0969	.0757	.0276	.0040
4	-.2478	.0913	.0608	.0159	.0038
6	-.0917	.0919	.0492	-.0006	.0044
8	.0867	.1074	.0309	-.0159	.0068
10	.2107	.1351	.0176	-.0263	.0099
12	.3594	.1678	.0076	-.0359	.0131
16	.5577	.2369	.0149	-.0480	.0191
20	.6890	.3073	.0455	-.0554	.0255
M = 0.85					
-4	-.7252	.1551	.1100	.0611	.0088
-2	-.6043	.1238	.0913	.0510	.0065
0	-.4881	.1088	.0881	.0394	.0047
2	-.3719	.0972	.0819	.0279	.0040
4	-.2371	.0891	.0657	.0135	.0039
6	-.0930	.0914	.0570	-.0008	.0046
8	.0697	.1088	.0399	-.0149	.0070
10	.2208	.1296	.0212	-.0269	.0100
12	.3789	.1643	.0072	-.0378	.0136
16	.5811	.2303	.0215	-.0502	.0198
20	.7089	.3148	.0558	-.0575	.0263
M = 0.90					
-4	-.7386	.1581	.1064	.0653	.0076
-2	-.6063	.1306	.0960	.0521	.0058
0	-.4674	.1120	.0907	.0379	.0047
2	-.3417	.0999	.0798	.0249	.0041
4	-.2095	.0922	.0665	.0106	.0039
6	-.0595	.0922	.0582	-.0036	.0048
8	.0992	.1065	.0414	-.0177	.0069
10	.2646	.1361	.0236	-.0308	.0101
12	.4189	.1614	.0030	-.0413	.0136
16	.6394	.2382	.0363	-.0563	.0207
20	.7607	.3172	.0709	-.0631	.0273

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.6927	.1589	.1041	.0631	.0093
-2	-.5668	.1296	.0830	.0500	.0067
0	-.3989	.1118	.0689	.0322	.0050
2	-.2729	.1014	.0549	.0191	.0044
4	-.1469	.0962	.0436	.0065	.0045
6	-.0105	.0982	.0380	-.0088	.0055
8	.1679	.1139	.0183	-.0246	.0079
10	.3149	.1432	.0028	-.0372	.0162
12	.4513	.1714	-.0155	-.0466	.0149
16	.6823	.2498	-.0549	-.0609	.0222
20	.8292	.3439	-.0914	-.0681	.0296
M = 1.00					
-4	-.5926	.1570	.0659	.0556	.0089
-2	-.4620	.1340	.0498	.0428	.0066
0	-.3314	.1140	.0390	.0286	.0051
2	-.2109	.1040	.0256	.0148	.0045
4	-.0402	.1040	.0067	-.0007	.0050
6	.0904	.1070	.0027	-.0151	.0060
8	.2712	.1340	-.0202	-.0318	.0093
10	.3576	.1470	-.0283	-.0411	.0121
12	.5223	.1920	-.0525	-.0537	.0165
16	.7533	.1740	-.0942	-.0702	.0252
20	.9341	.3890	-.1427	-.0824	.0355
M = 1.05					
-4	-.5892	.1481	.0585	.0546	.0087
-2	-.4540	.1260	.0430	.0417	.0065
0	-.2994	.1096	.0280	.0263	.0051
2	-.1777	.1000	.0119	.0132	.0047
4	-.0483	.1000	.0016	-.0008	.0049
6	.1217	.1068	-.0088	-.0169	.0062
8	.2646	.1289	-.0243	-.0318	.0091
10	.4153	.1577	-.0476	-.0448	.0129
12	.5602	.1962	-.0683	-.0559	.0169
16	.7630	.2799	-.1066	-.0715	.0256
20	.9388	.3934	-.1563	-.0854	.0364
M = 1.10					
-4	-.5498	.1429	.0564	.0519	.0080
-2	-.4380	.1225	.0415	.0399	.0061
0	-.3075	.1058	.0265	.0271	.0049
2	-.1677	.0965	.0105	.0123	.0045
4	-.0373	.0937	.0005	-.0014	.0051
6	.1212	.1012	-.0105	-.0172	.0062
8	.2609	.1243	-.0260	-.0319	.0092
10	.4194	.1568	-.0485	-.0444	.0129
12	.5405	.1939	-.0659	-.0539	.0167
16	.7269	.2710	-.1009	-.0683	.0247
20	.9133	.3888	-.1459	-.0827	.0358

TABLE III.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Continued

(c) Half-span spoiler slot deflector; δ_s = -0.075c; δ_d/δ_s = 0.75

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.6608	.1448	.0784	.0553	.0093
-2	-.5798	.1246	.0849	.0487	.0071
0	-.4786	.1127	.0923	.0389	.0054
2	-.3958	.1081	.0923	.0299	.0050
4	-.2945	.1036	.0858	.0181	.0047
6	-.1657	.1063	.0784	.0055	.0050
8	-.0276	.1219	.0710	-.0079	.0062
10	.1012	.1448	.0612	-.0181	.0087
12	.2117	.1723	.0587	-.0244	.0111
16	.4142	.2419	.0419	-.0377	.0172
20	.5559	.3153	.0094	-.0441	.0227
M = 0.80					
-4	-.6586	.1565	.0796	.0555	.0093
-2	-.5467	.1318	.0806	.0468	.0182
0	-.4349	.1194	.0686	.0355	.0051
2	-.3579	.1132	.0889	.0257	.0045
4	-.2535	.1064	.0863	.0143	.0045
6	-.1367	.1070	.0839	.0023	.0051
8	.0000	.1213	.0806	-.0079	.0069
10	.1168	.1441	.0773	-.0192	.0092
12	.2485	.1689	.0646	-.0277	.0119
16	.4349	.2308	.0380	-.0389	.0173
20	.5840	.3031	.0193	-.0477	.0236
M = 0.85					
-4	-.6710	.1589	.0809	.0589	.0099
-2	-.5522	.1322	.0793	.0477	.0072
0	-.4287	.1177	.0840	.0349	.0053
2	-.3378	.1131	.0849	.0253	.0050
4	-.2330	.1056	.0824	.0130	.0051
6	-.1095	.1067	.0824	.0008	.0054
8	.0233	.1206	.0793	-.0118	.0075
10	.1514	.1438	.0731	-.0209	.0098
12	.2679	.1676	.0653	-.0289	.0122
16	.4613	.2337	.0325	-.0409	.0181
20	.6058	.3051	.0087	-.0499	.0245
M = 0.90					
-4	-.6947	.1647	.0943	.0599	.0101
-2	-.5624	.1406	.0869	.0485	.0073
0	-.4323	.1252	.0869	.0349	.0058
2	-.3374	.1186	.0845	.0236	.0055
4	-.2183	.1131	.0819	.0110	.0054
6	-.0926	.1131	.0795	-.0019	.0060
8	.0551	.1285	.0736	-.0159	.0081
10	.1875	.1493	.0641	-.0251	.0106
12	.3022	.1735	.0544	-.0331	.0133
16	.4962	.2394	.0213	-.0453	.0191
20	.6396	.3163	.0225	-.0540	.0260

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.7025	.1827	.1107	.0629	.0106
-2	-.5557	.1556	.0925	.0485	.0081
0	-.4089	.1389	.0860	.0321	.0065
2	-.3083	.1316	.0770	.0210	.0059
4	-.1783	.1211	.0680	.0074	.0058
6	-.0419	.1232	.0615	-.0072	.0067
8	.1258	.1389	.0475	-.0212	.0092
10	.2831	.1671	.0298	-.0341	.0136
12	.3712	.1911	.0194	-.0413	.0153
16	.5662	.2537	-.0045	-.0521	.0213
20	.7025	.3320	-.0410	-.0598	.0282
M = 1.00					
-4	-.6417	.1787	.0924	.0596	.0106
-2	-.5013	.1538	.0723	.0446	.0079
0	-.3449	.1398	.0548	.0275	.0064
2	-.2005	.1308	.0398	.0143	.0060
4	-.1003	.1268	.0344	.0026	.0061
6	.0501	.1328	.0236	-.0137	.0071
8	.2206	.1528	.0075	-.0283	.0100
10	.3569	.1847	-.0107	-.0407	.0136
12	.4713	.2097	-.0220	-.0500	.0172
16	.6417	.2776	-.0355	-.0601	.0234
20	.8422	.3894	-.0946	-.0756	.0342
M = 1.05					
-4	-.5880	.1747	.0734	.0553	.0100
-2	-.4665	.1516	.0589	.0424	.0075
0	-.3181	.1373	.0424	.0264	.0062
2	-.1928	.1277	.0294	.0132	.0055
4	-.0771	.1267	.0227	.0008	.0059
6	.0771	.1325	.0114	-.0149	.0070
8	.2410	.1536	-.0021	-.0297	.0101
10	.3836	.1804	-.0212	-.0421	.0139
12	.4916	.2140	-.0341	-.0512	.0176
16	.6747	.2908	-.0651	-.0654	.0254
20	.8482	.3916	-.1054	-.0776	.0351
M = 1.10					
-4	-.5766	.1695	.0723	.0546	.0092
-2	-.4501	.1463	.0568	.0409	.0068
0	-.3162	.1324	.0409	.0263	.0056
2	-.1804	.1204	.0259	.0124	.0054
4	-.0651	.1195	.0194	.0000	.0059
6	.0837	.1278	.0095	-.0154	.0070
8	.2418	.1510	-.0030	-.0296	.0098
10	.3627	.1834	-.0254	-.0417	.0137
12	.4966	.2186	-.0404	-.0514	.0175
16	.6510	.2871	-.0653	-.0634	.0246
20	.8184	.3982	-.1067	-.0757	.0342

[redacted]

TABLE III.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 0 - Concluded

(d) Half-span spoiler slot deflector; δ_s = -0.075c; δ_d/δ_s = 1.00

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.4980	.1350	.0608	.0434	.0076
-2	-.4242	.1240	.0554	.0365	.0064
0	-.3338	.1231	.0662	.0264	.0051
2	-.2674	.1221	.0653	.0185	.0051
4	-.1844	.1194	.0732	.0092	.0047
6	-.0922	.1304	.0751	-.0002	.0047
8	.0000	.1414	.0766	-.0092	.0059
10	.0830	.1607	.0806	-.0164	.0078
12	.1660	.1892	.0914	-.0212	.0096
16	.2951	.2397	.0934	-.0292	.0138
20	.4298	.3021	.0677	-.0355	.0182
M = 0.80					
-4	-.5167	.1581	.0507	.0452	.0078
-2	-.4221	.1407	.0534	.0359	.0058
0	-.3200	.1333	.0584	.0254	.0049
2	-.2303	.1302	.0577	.0151	.0048
4	-.1332	.1265	.0574	.0049	.0050
6	-.0311	.1314	.0574	-.0062	.0053
8	.0872	.1488	.0607	-.0161	.0074
10	.1805	.1705	.0644	-.0232	.0097
12	.2615	.1934	.0717	-.0286	.0118
16	.3797	.2418	.0751	-.0337	.0157
20	.4669	.2976	.0597	-.0387	.0205
M = 0.85					
-4	-.5195	.1569	.0522	.0452	.0080
-2	-.4144	.1395	.0485	.0354	.0063
0	-.3070	.1337	.0526	.0244	.0051
2	-.2218	.1279	.0516	.0147	.0051
4	-.1167	.1250	.0497	.0032	.0052
6	-.0058	.1331	.0538	-.0083	.0059
8	.1051	.1494	.0560	-.0180	.0078
10	.1984	.1709	.0585	-.0254	.0102
12	.2918	.1947	.0641	-.0313	.0127
16	.4144	.2511	.0663	-.0370	.0167
20	.5019	.3057	.0491	-.0420	.0219
M = 0.90					
-4	-.5249	.1595	.0539	.0477	.0082
-2	-.4166	.1430	.0480	.0363	.0066
0	-.2984	.1364	.0524	.0246	.0056
2	-.2044	.1320	.0495	.0136	.0056
4	-.1050	.1276	.0471	.0021	.0057
6	.0144	.1375	.0489	-.0100	.0063
8	.1326	.1562	.0480	-.0212	.0087
10	.2486	.1816	.0506	-.0303	.0113
12	.3348	.2047	.0542	-.0360	.0139
16	.4531	.2641	.0509	-.0420	.0186
20	.5525	.3191	.0358	-.0467	.0235

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.5462	.1673	.0611	.0507	.0086
-2	-.4306	.1537	.0569	.0372	.0072
0	-.3151	.1475	.0569	.0246	.0062
2	-.2101	.1360	.0538	.0130	.0059
4	-.1113	.1412	.0518	.0020	.0062
6	.0210	.1464	.0487	-.0115	.0071
8	.1512	.1652	.0431	-.0239	.0093
10	.2836	.1945	.0352	-.0347	.0129
12	.3886	.2249	.0301	-.0425	.0159
16	.5042	.2688	.0287	-.0473	.0202
20	.6386	.3451	.0048	-.0554	.0267
M = 1.00					
-4	-.5524	.2850	.0729	.0513	.0097
-2	-.4118	.1680	.0611	.0361	.0077
0	-.2913	.1620	.0536	.0227	.0070
2	-.2009	.1550	.0450	.0124	.0069
4	-.0803	.1530	.0412	-.0003	.0068
6	.0402	.1570	.0396	-.0131	.0074
8	.2109	.1820	.0213	-.0289	.0102
10	.3314	.2070	.0113	-.0392	.0139
12	.4419	.2350	.0019	-.0478	.0174
16	.5926	.2950	-.0070	-.0578	.0231
20	.7432	.3850	-.0393	-.0685	.0314
M = 1.05					
-4	-.5349	.1856	.0668	.0499	.0095
-2	-.3959	.1682	.0520	.0351	.0078
0	-.2703	.1586	.0432	.0215	.0069
2	-.1603	.1519	.0349	.0099	.0057
4	-.0579	.1519	.0305	-.0017	.0068
6	.0869	.1625	.0176	-.0170	.0079
8	.2317	.1807	.0070	-.0303	.0104
10	.3592	.2115	-.0085	-.0417	.0142
12	.4789	.2423	-.0228	-.0511	.0179
16	.6488	.3096	-.0448	-.0638	.0249
20	.7917	.4086	-.0693	-.0741	.0333
M = 1.10					
-4	-.5253	.1771	.0617	.0485	.0091
-2	-.4005	.1595	.0492	.0351	.0072
0	-.2608	.1530	.0404	.0204	.0066
2	-.1583	.1465	.0307	.0091	.0064
4	-.0466	.1437	.0237	-.0029	.0066
6	.0838	.1549	.0130	-.0172	.0077
8	.2421	.1808	.0030	-.0305	.0104
10	.3632	.2059	-.0132	-.0411	.0141
12	.4657	.2411	-.0282	-.0499	.0174
16	.6426	.3060	-.0457	-.0627	.0245
20	.7637	.4034	-.0696	-.0716	.0323

TABLE IV.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 1

(a) Plain wing

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.2984	.0226	.0104	.0347	.0023
-2	-.1874	.0145	.0065	.0215	.0022
0	-.0546	.0091	.0013	.0059	.0012
2	.0819	.0136	.0046	-.0097	.0008
4	.1965	.0217	.0150	-.0237	.0017
6	.3275	.0362	.0280	-.0393	.0042
8	.4730	.0652	.0273	-.0548	.0083
10	.5913	.1024	.0104	-.0673	.0136
12	.6768	.1449	.0052	-.0743	.0190
16	.7241	.2083	.0013	-.0754	.0254
20	.7405	.2718	.0195	-.0782	.0324
M = 0.80					
-4	-.3346	.0257	.0167	.0393	.0022
-2	-.1845	.0141	.0044	.0219	.0017
0	-.0431	.0086	.0040	.0056	.0009
2	.0972	.0104	.0123	-.0107	.0006
4	.2251	.0184	.0207	-.0260	.0021
6	.3752	.0337	.0338	-.0434	.0039
8	.5167	.0625	.0237	-.0594	.0082
10	.6151	.0980	.0044	-.0695	.0132
12	.6791	.1347	.0000	-.0742	.0174
16	.7307	.1978	.0048	-.0773	.0243
20	.7504	.2634	.0246	-.0803	.0319
M = 0.85					
-4	-.3502	.0275	.0148	.0400	.0021
-2	-.2073	.0155	.0074	.0233	.0016
0	-.0461	.0086	.0366	.0055	.0005
2	.1037	.0115	.0148	-.0118	.0006
4	.2350	.0178	.0235	-.0280	.0021
6	.4009	.0333	.0346	-.0468	.0045
8	.5552	.0602	.0329	-.0655	.0084
10	.6520	.0946	.0082	-.0754	.0139
12	.6911	.1325	.0033	-.0752	.0181
16	.7487	.1984	.0140	-.0793	.0254
20	.7764	.2696	.0280	-.0823	.0332
M = 0.90					
-4	-.3700	.0325	.0093	.0425	.0020
-2	-.2089	.0168	.0070	.0239	.0014
0	-.0479	.0081	.0043	.0052	.0005
2	.1088	.0108	.0171	-.0125	.0010
4	.2612	.0179	.0241	-.0302	.0025
6	.4244	.0352	.0233	-.0507	.0050
8	.5877	.0629	.0124	-.0693	.0090
10	.7183	.0975	.0117	-.0852	.0144
12	.7618	.1371	.0128	-.0852	.0197
16	.7770	.2032	.0226	-.0842	.0263
20	.8162	.2763	.0401	-.0874	.0346

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.3617	.0370	.0162	.0427	.0022
-2	-.1963	.0206	.0137	.0244	.0012
0	-.0351	.0103	.0151	.0046	.0009
2	.1240	.0123	.0089	-.0136	.0014
4	.2687	.0206	.0107	-.0313	.0028
6	.4237	.0391	-.0066	-.0508	.0057
8	.5787	.0669	-.0288	-.0694	.0099
10	.6945	.0978	-.0454	-.0844	.0151
12	.8081	.1410	-.0657	-.0980	.0215
16	.8784	.2161	-.0565	-.1016	.0297
20	.8991	.2943	-.0620	-.0998	.0381
M = 1.00					
-4	-.3355	.0393	-.0021	.0414	.0032
-2	-.1816	.0226	-.0169	.0225	.0021
0	-.0197	.0147	.0071	.0035	.0014
2	.1145	.0147	-.0011	-.0130	.0018
4	.2566	.0265	-.0116	-.0308	.0036
6	.4046	.0413	-.0247	-.0494	.0062
8	.5467	.0678	-.0494	-.0679	.0105
10	.6711	.0983	-.0716	-.0832	.0156
12	.7895	.1366	-.0892	-.0977	.0212
16	.9672	.2191	-.1210	-.1190	.0332
20	.0856	.3194	-.1368	-.1308	.0460
M = 1.05					
-4	-.3276	.0396	.0342	.0402	.0035
-2	-.1799	.0245	.0189	.0224	.0022
0	-.0284	.0189	.0074	.0037	.0015
2	.1136	.0189	.0000	-.0125	.0022
4	.2462	.0264	-.0112	-.0295	.0037
6	.3882	.0405	-.0284	-.0477	.0063
8	.5208	.0641	-.0470	-.0652	.0099
10	.6439	.0943	-.0670	-.0798	.0234
12	.7518	.1282	-.0856	-.0921	.0202
16	.9166	.2055	-.1177	-.1135	.0316
20	.0794	.3064	-.1042	-.1304	.0459
M = 1.10					
-4	-.3200	.0373	.0330	.0396	.0033
-2	-.1737	.0228	.0193	.0216	.0020
0	-.0256	.0173	.0078	.0033	.0013
2	.1097	.0182	.0007	-.0128	.0021
4	.2377	.0246	-.0091	-.0288	.0038
6	.3840	.0410	-.0265	-.0465	.0061
8	.5120	.0628	-.0464	-.0629	.0096
10	.6217	.0892	-.0647	-.0770	.0142
12	.7369	.1247	-.0827	-.0899	.0195
16	.8996	.2021	-.1130	-.1102	.0305
20	.0423	.2986	-.1398	-.1275	.0221

[redacted]

TABLE IV.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 1 - Continued

(b) Full-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 0.50$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.6573	.1316	.0197	.0780	.0171
-2	-.5912	.1225	.0328	.0707	.0168
0	-.4865	.1133	.0545	.0597	.0158
2	-.3929	.1133	.0676	.0503	.0149
4	-.2937	.1051	.0748	.0384	.0144
6	-.1505	.0987	.0768	.0220	.0133
8	.0147	.1005	.0722	.0025	.0127
10	.2093	.1216	.0453	-.0230	.0138
12	.3543	.1499	.0394	-.0377	.0169
16	.5104	.2066	.0367	-.0512	.0237
20	.6077	.2678	.0112	-.0629	.0320
M = 0.80					
-4	-.6956	.1472	.0333	.0804	.0186
-2	-.5838	.1305	.0475	.0655	.0171
0	-.4646	.1206	.0679	.0574	.0163
2	-.3752	.1144	.0821	.0474	.0158
4	-.2509	.1051	.0910	.0340	.0146
6	-.0894	.0983	.0959	.0166	.0132
8	.0969	.1045	.0715	-.0079	.0135
10	.2634	.1194	.0755	-.0277	.0153
12	.3975	.1447	.0533	-.0404	.0188
16	.5342	.1942	.0413	-.0532	.0249
20	.6186	.2554	.0142	-.0638	.0325
M = 0.85					
-4	-.6888	.1477	.0437	.0827	.0192
-2	-.5655	.1356	.0486	.0678	.0176
0	-.4584	.1269	.0728	.0568	.0171
2	-.3467	.1164	.0915	.0448	.0161
4	-.2281	.1066	.0969	.0319	.0148
6	-.0814	.0979	.0985	.0149	.0138
8	.1187	.1049	.0728	-.0110	.0137
10	.2862	.1182	.0570	-.0299	.0154
12	.4026	.1419	.0553	-.0412	.0182
16	.5422	.1935	.0441	-.0538	.0243
20	.6353	.2566	.0141	-.0652	.0324
M = 0.90					
-4	-.6882	.1664	.0570	.0825	.0207
-2	-.5452	.1467	.0605	.0659	.0190
0	-.4287	.1335	.0805	.0542	.0182
2	-.3166	.1253	.0939	.0420	.0172
4	-.1847	.1117	.1017	.0279	.0155
6	-.0374	.1067	.1080	.0113	.0145
8	.1451	.1117	.0809	-.0132	.0145
10	.3100	.1253	.0625	-.0320	.0162
12	.4353	.1483	.0589	-.0442	.0192
16	.5716	.1751	.0475	-.0565	.0253
20	.6640	.2698	.0161	-.0678	.0330

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.6388	.1751	.0638	.0787	.0226
-2	-.5157	.1528	.0593	.0640	.0206
0	-.3800	.1414	.0735	.0497	.0195
2	-.2756	.1310	.0873	.0381	.0185
4	-.1503	.1190	.0951	.0232	.0168
6	.0146	.1138	.0989	.0054	.0156
8	.1858	.1206	.0795	-.0170	.0158
10	.3278	.1336	.0582	-.0352	.0177
12	.4656	.1570	.0466	-.0492	.0206
16	.6180	.2120	.0369	-.0617	.0266
20	.7015	.2755	.0108	-.0724	.0344
M = 1.00					
-4	-.5941	.1732	.0509	.0739	.0222
-2	-.4606	.1534	.0499	.0580	.0206
0	-.3389	.1415	.0623	.0449	.0197
2	-.2313	.1340	.0709	.0324	.0188
4	-.1136	.1241	.0766	.0196	.0176
6	.0399	.1186	.0830	.0017	.0165
8	.2054	.1037	.0659	-.0205	.0174
10	.3549	.1424	.0460	-.0384	.0197
12	.4845	.1608	.0267	-.0546	.0224
16	.6500	.2169	.0089	-.0700	.0283
20	.7935	.2968	-.0160	-.0845	.0374
M = 1.05					
M = 1.10					

TABLE IV.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 1 - Continued

(c) Half-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 0.50$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.5386	.0894	.0285	.0548	.0169
-2	-.4479	.0849	.0382	.0433	.0151
0	-.3173	.0894	.0194	.0300	.0118
2	-.2140	.0984	.0130	.0186	.0103
4	-.0961	.1047	.0052	.0054	.0094
6	.0326	.1138	.0065	-.0092	.0086
8	.1342	.1255	.0227	-.0256	.0103
10	.3010	.1625	.0292	-.0438	.0151
12	.4261	.1923	.0207	-.0547	.0207
16	.5422	.2519	.0272	-.0640	.0258
20	.6528	.3151	.2974	-.0742	.0396
M = 0.80					
-4	-.5667	.1032	.0162	.0594	.0164
-2	-.4440	.0934	.0075	.0460	.0150
0	-.3152	.0849	.0009	.0311	.0131
2	-.2232	.0788	.0013	.0197	.0119
4	-.1128	.0800	.0039	.0065	.0118
6	.0380	.0855	.0096	-.0105	.0108
8	.1877	.1069	.0022	-.0279	.0137
10	.3532	.1337	.0118	-.0462	.0169
12	.4636	.1600	.0070	-.0540	.0215
16	.5863	.2070	.0123	-.0641	.0299
20	.6844	.2724	.0333	-.0741	.0407
M = 0.85					
-4	-.5903	.1121	.0103	.0620	.0169
-2	-.4410	.0949	.0070	.0452	.0152
0	-.3147	.0863	.0021	.0309	.0144
2	-.2113	.0783	.0082	.0187	.0136
4	-.0758	.0749	.0144	.0045	.0130
6	.0643	.0795	.0185	-.0122	.0125
8	.2136	.0978	.0123	-.0299	.0148
10	.3744	.1252	.0041	-.0472	.0176
12	.4778	.1538	.0029	-.0547	.0214
16	.6041	.2110	.0103	-.0653	.0296
20	.6960	.2767	.0361	-.0757	.0397
M = 0.90					
-4	-.5752	.1162	.0008	.0613	.0174
-2	-.4385	.0978	.0008	.0465	.0156
0	-.3082	.0886	.0097	.0303	.0145
2	-.1997	.0805	.0155	.0182	.0138
4	-.0586	.0762	.0244	.0033	.0135
6	.0825	.0778	.0271	-.0125	.0135
8	.2279	.0940	.0252	-.0310	.0149
10	.3864	.1210	.0019	-.0489	.0184
12	.5058	.1502	.0008	-.0576	.0227
16	.6252	.2102	.0089	-.0673	.0301
20	.7250	.2767	.0407	-.0781	.0398

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.5401	.1252	.0166	.0595	.0180
-2	-.4164	.1062	.0118	.0438	.0158
0	-.2906	.0934	.0184	.0288	.0146
2	-.1505	.0842	.0239	.0147	.0137
4	-.0350	.0806	.0295	.0014	.0137
6	.1154	.0852	.0313	-.0159	.0139
8	.2535	.0970	.0247	-.0335	.0162
10	.4081	.1201	.0074	-.0512	.0197
12	.5421	.1509	-.0129	-.0653	.0249
16	.6761	.2124	-.0239	-.0745	.0316
20	.7586	.2853	-.0460	-.0830	.0395
M = 1.00					
-4	-.5059	.1245	.0123	.0565	.0169
-2	-.3602	.1049	.0056	.0379	.0156
0	-.2402	.0941	.0035	.0244	.0124
2	-.1220	.0877	.0035	.0113	.0122
4	-.0039	.0867	.0053	-.0025	.0104
6	.1339	.0902	.0123	-.0185	.0134
8	.2815	.1044	.0025	-.0374	.0152
10	.4193	.1294	-.0158	-.0543	.0185
12	.5571	.1539	-.0369	-.0703	.0230
16	.7539	.2274	-.0703	-.0910	.0287
20	.8524	.3078	-.0721	-.0978	.0352
M = 1.05					
-4	-.4646	.1128	.0091	.0529	.0104
-2	-.3437	.1006	.0024	.0382	.0074
0	-.2210	.0936	.0034	.0247	.0066
2	-.1171	.0912	-.0017	.0102	.0034
4	-.0132	.0936	.0017	-.0027	.0040
6	.1284	.0936	.0034	-.0205	.0040
8	.2701	.1105	-.0051	-.0372	.0068
10	.4136	.1321	-.0253	-.0545	.0107
12	.5345	.1613	-.0503	-.0707	.0133
16	.7328	.2252	-.0877	-.0938	.0225
20	.8934	.3141	-.1164	-.1245	.0337
M = 1.10					
-4	-.4504	.1040	.0186	.0523	.0030
-2	-.3501	.0949	.0000	.0379	.0012
0	-.2225	.0949	.0000	.0231	.0005
2	-.1295	.0858	-.0042	.0111	-.0016
4	-.0109	.0903	.0016	-.0023	-.0007
6	.1422	.0903	.0046	-.0198	.0020
8	.2699	.1130	-.0029	-.0367	.0020
10	.3976	.1357	-.0218	-.0531	.0038
12	.5161	.1648	-.0505	-.0687	.0072
16	.7076	.2315	-.0857	-.0918	.0138
20	.8571	.2987	-.1352	-.1106	.0263

TABLE IV.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 1 - Continued

(d) Half-span spoiler slot deflector; δ_s = -0.075c; δ_d/δ_s = 0.75

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.5394	.1071	.0065	.0548	.0078
-2	-.4192	.0880	.0098	.0410	.0063
0	-.3025	.0798	.0016	.0279	.0055
2	-.2242	.0753	.0065	.0183	.0053
4	-.1294	.0735	.0140	.0070	.0052
6	-.0018	.0726	.0195	-.0072	.0055
8	.1349	.0871	.0260	-.0222	.0070
10	.2898	.1116	.0130	-.0395	.0117
12	.3900	.1388	.0130	-.0473	.0155
16	.5121	.1933	.0179	-.0554	.0213
20	.5868	.2504	.0147	-.0643	.0291
M = 0.80					
-4	-.5244	.1060	.0110	.0540	.0071
-2	-.4075	.0907	.0066	.0405	.0061
0	-.2967	.0815	.0022	.0274	.0056
2	-.2105	.0785	.0110	.0173	.0053
4	-.0997	.0754	.0198	.0051	.0053
6	.0357	.0735	.0264	-.0099	.0054
8	.1896	.0864	.0264	-.0270	.0081
10	.3250	.1109	.0132	-.0422	.0124
12	.4087	.1367	.0172	-.0479	.0157
16	.5158	.1857	.0176	-.0557	.0216
20	.5897	.2470	.0143	-.0649	.0296
M = 0.85					
-4	-.5197	.1067	.0082	.0553	.0074
-2	-.4045	.0935	.0056	.0405	.0061
0	-.2892	.0849	.0027	.0262	.0057
2	-.1970	.0803	.0124	.0162	.0055
4	-.0876	.0734	.0206	.0037	.0053
6	.0507	.0734	.0288	-.0114	.0056
8	.2005	.0878	.0278	-.0286	.0082
10	.3330	.1107	.0124	-.0434	.0124
12	.4194	.1394	.0144	-.0480	.0157
16	.5174	.1882	.0175	-.0564	.0217
20	.5969	.2484	.0165	-.0661	.0298
M = 0.90					
-4	-.5249	.1128	.0039	.0571	.0076
-2	-.4051	.0981	.0039	.0420	.0066
0	-.2810	.0884	.0058	.0265	.0059
2	-.1873	.0830	.0156	.0157	.0056
4	-.0675	.0764	.0230	.0022	.0055
6	.0741	.0775	.0311	-.0140	.0059
8	.2200	.0884	.0331	-.0302	.0087
10	.3354	.1101	.0146	-.0444	.0127
12	.4378	.1399	.0185	-.0500	.0164
16	.5532	.1984	.0136	-.0602	.0233
20	.6294	.2565	.0195	-.0696	.0311

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4922	.1148	.0055	.0540	.0078
-2	-.3888	.1019	.0028	.0404	.0069
0	-.2544	.0906	.0139	.0248	.0063
2	-.1634	.0891	.0185	.0136	.0063
4	-.0538	.0813	.0314	.0007	.0060
6	.1013	.0813	.0397	-.0152	.0062
8	.2254	.0916	.0388	-.0303	.0087
10	.3495	.1164	.0249	-.0452	.0128
12	.4529	.1457	.0129	-.0545	.0172
16	.5770	.1972	.0028	-.0634	.0235
20	.6701	.2657	-.0286	-.0747	.0324
M = 1.00					
-4	-.4701	.1210	.0115	.0519	.0092
-2	-.3476	.1062	.0079	.0370	.0079
0	-.2390	.0964	.0132	.0232	.0074
2	-.1402	.0915	.0150	.0122	.0074
4	-.0217	.0895	.0212	-.0014	.0074
6	.1264	.0885	.0300	-.0183	.0078
8	.2548	.1013	.0238	-.0352	.0108
10	.3832	.1210	.0124	-.0492	.0139
12	.5017	.1505	-.0168	-.0639	.0188
16	.6399	.2095	-.0300	-.0758	.0264
20	.7683	.2832	-.0547	-.0839	.0350
M = 1.05					
-4	-.4663	.1227	.0085	.0506	.0093
-2	-.3431	.1067	.0051	.0360	.0078
0	-.2294	.0972	.0288	.0222	.0072
2	-.1289	.0878	.0152	.0109	.0070
4	-.0209	.0878	.0196	-.0018	.0070
6	.1213	.0878	.0254	-.0183	.0079
8	.2635	.1010	.0186	-.0354	.0102
10	.3772	.1208	.0000	-.0500	.0131
12	.4910	.1472	-.0210	-.0640	.0178
16	.6711	.2105	-.0660	-.0841	.0277
20	.7943	.2860	-.0830	-.0935	.0371
M = 1.10					
-4	-.4594	.1166	.0082	.0505	.0086
-2	-.3496	.1030	.0016	.0364	.0074
0	-.2306	.0920	.0082	.0215	.0067
2	-.1208	.0875	.0147	.0097	.0066
4	-.0110	.0848	.0196	-.0028	.0066
6	.1171	.0875	.0255	-.0185	.0073
8	.2544	.0984	.0164	-.0350	.0099
10	.3734	.1166	-.0016	-.0498	.0296
12	.4832	.1440	-.0213	-.0624	.0168
16	.6571	.2032	-.0644	-.0824	.0263
20	.8090	.2852	-.0948	-.0962	.0372

TABLE IV.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 30° AND TAPER RATIO OF 1 - Concluded

(e) Half-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 1.00$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.4859	.1142	.0267	.0506	.0088
-2	-.3494	.0979	.0234	.0358	.0075
0	-.2584	.0933	.0150	.0245	.0070
2	-.1765	.0888	.0052	.0143	.0068
4	-.0855	.0888	.0059	.0031	.0063
6	.0328	.0915	.0124	-.0104	.0065
8	.1602	.1069	.0189	-.0257	.0086
10	.3058	.1341	.0098	-.0419	.0135
12	.3931	.1613	.0156	-.0475	.0168
16	.4696	.2084	.0267	-.0521	.0223
20	.5114	.2610	.0013	-.0583	.0294
M = 0.80					
-4	-.4701	.1146	.0290	.0501	.0082
-2	-.3470	.1029	.0246	.0357	.0071
0	-.2363	.0968	.0123	.0220	.0065
2	-.1501	.0919	.0013	.0121	.0065
4	-.0480	.0895	.0084	.0004	.0065
6	.0751	.0907	.0193	-.0140	.0070
8	.2190	.1091	.0163	-.0313	.0103
10	.3606	.1336	.0084	-.0458	.0142
12	.4283	.1611	.0172	-.0506	.0177
16	.4836	.2010	.0259	-.0537	.0225
20	.5304	.2561	.0040	-.0603	.0295
M = 0.85					
-4	-.4751	.1165	.0313	.0504	.0082
-2	-.3540	.1051	.0239	.0363	.0074
0	-.2329	.0993	.0128	.0223	.0070
2	-.1464	.0936	.0004	.0079	.0067
4	-.0392	.0907	.0107	-.0010	.0066
6	.1015	.0936	.0223	-.0162	.0071
8	.2341	.1091	.0181	-.0332	.0105
10	.3667	.1338	.0078	-.0468	.0144
12	.4359	.1596	.0173	-.0509	.0179
16	.5050	.2084	.0264	-.0559	.0233
20	.5396	.2601	.0041	-.0616	.0302
M = 0.90					
-4	-.4817	.1226	.0288	.0517	.0086
-2	-.3509	.1118	.0199	.0360	.0077
0	-.2310	.1047	.0082	.0218	.0072
2	-.1384	.0993	.0035	.0112	.0071
4	-.0294	.0955	.0152	-.0013	.0071
6	.1068	.0977	.0280	-.0172	.0077
8	.2539	.1101	.0249	-.0338	.0106
10	.3792	.1373	.0105	-.0485	.0149
12	.4446	.1660	.0152	-.0526	.0185
16	.5318	.2159	.0230	-.0590	.0246
20	.5623	.2675	.0035	-.0644	.0316

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4595	.1252	-.0214	.0505	.0091
-2	-.3353	.1175	-.0152	.0351	.0083
0	-.2111	.1097	-.0041	.0209	.0078
2	-.1283	.1061	.0033	.0101	.0078
4	-.0145	.0994	.0181	-.0028	.0078
6	.1097	.1020	.0311	-.0177	.0081
8	.2442	.1149	.0329	-.0337	.0110
10	.3725	.1381	.0163	-.0484	.0152
12	.4615	.1680	.0144	-.0556	.0194
16	.5443	.2205	.0181	-.0617	.0256
20	.6167	.2762	-.0004	-.0693	.0050
M = 1.00					
-4	-.4388	.1407	-.0180	.0482	.0102
-2	-.3202	.1210	-.0145	.0338	.0090
0	-.2115	.1181	-.0057	.0200	.0088
2	-.1225	.1112	.0032	.0088	.0088
4	-.0040	.1063	.0120	-.0046	.0086
6	.1344	.1112	.0208	-.0203	.0097
8	.2629	.1240	.0191	-.0364	.0126
10	.3913	.1456	.0095	-.0516	.0160
12	.4862	.1752	-.0074	-.0635	.0207
16	.5890	.2244	.0032	-.0685	.0273
20	.7174	.3031	-.0286	-.0829	.0370
M = 1.05					
-4	-.4210	.1378	-.0173	.0466	.0101
-2	-.3110	.1256	-.0156	.0325	.0090
0	-.1896	.1161	-.0037	.0187	.0088
2	-.1081	.1114	.0041	.0078	.0086
4	.0057	.1067	.0115	-.0049	.0086
6	.1479	.1114	.0217	-.0213	.0094
8	.2712	.1256	.0183	-.0375	.0123
10	.3755	.1445	.0047	-.0510	.0155
12	.4798	.1728	-.0122	-.0637	.0198
16	.6504	.2341	-.0461	-.0828	.0298
20	.7358	.3031	-.0495	-.0880	.0383
M = 1.10					
-4	-.4156	.1331	-.0173	.0464	.0095
-2	-.3149	.1176	-.0200	.0328	.0084
0	-.1904	.1094	-.0052	.0183	.0081
2	-.0989	.1076	.0029	.0071	.0080
4	.0146	.1030	.0137	-.0058	.0082
6	.1337	.1076	.0209	-.0204	.0088
8	.2618	.1212	.0170	-.0368	.0116
10	.3808	.1422	.0046	-.0505	.0148
12	.4724	.1668	-.0121	-.0622	.0191
16	.6372	.2261	-.0445	-.0792	.0284
20	.7470	.2990	-.0576	-.0897	.0380

TABLE V.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0

(a) Plain wing

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.3043	.0181	.0403	.0292	.0010
-2	-.1950	.0136	.0284	.0192	.0010
0	-.0674	.0118	.0143	.0059	.0002
2	.0419	.0136	.0007	-.0058	.0002
4	.1658	.0227	.0111	-.0178	.0008
6	.2879	.0454	.0197	-.0292	.0030
8	.4064	.0708	.0257	-.0385	.0062
10	.5303	.1125	.0215	-.0471	.0098
12	.6160	.1497	.0172	-.0529	.0140
16	.7709	.2377	.0219	-.0616	.0215
20	.8620	.3339	.0268	-.0646	.0288
M = 0.80					
-4	-.3292	.0233	.0463	.0318	.0017
-2	-.1997	.0092	.0296	.0200	.0008
0	-.0641	.0061	.0151	.0069	.0001
2	.0592	.0080	.0039	-.0065	.0001
4	.1887	.0153	.0158	-.0191	.0015
6	.3243	.0356	.0269	-.0315	.0038
8	.4538	.0645	.0368	-.0417	.0070
10	.5709	.1001	.0312	-.0496	.0106
12	.6486	.1381	.0328	-.0545	.0140
16	.7965	.2241	.0478	-.0621	.0213
20	.8705	.3069	.0597	-.0652	.0281
M = 0.85					
-4	-.3390	.0218	.0463	.0329	.0019
-2	-.2006	.0086	.0324	.0204	.0006
0	-.0553	.0046	.0161	.0061	-.0001
2	.0692	.0057	.0030	-.0071	.0001
4	.2029	.0144	.0199	-.0203	.0018
6	.3413	.0344	.0337	-.0331	.0042
8	.4796	.0603	.0382	-.0431	.0075
10	.5834	.0947	.0614	-.0502	.0111
12	.6641	.1349	.0419	-.0557	.0146
16	.7909	.2181	.0561	-.0624	.0215
20	.8832	.3100	.0714	-.0665	.0288
M = 0.90					
-4	-.3641	.0277	.0541	.0345	.0019
-2	-.2115	.0125	.0372	.0218	.0006
0	-.0589	.0081	.0204	.0071	-.0001
2	.0720	.0081	.0045	-.0077	.0000
4	.2202	.0163	.0217	.0153	.0020
6	.3554	.0331	.0373	-.0342	.0046
8	.4862	.0624	.0503	-.0452	.0069
10	.6018	.0950	.0530	-.0525	.0115
12	.6933	.1373	.0549	-.0581	.0153
16	.8198	.2198	.0670	-.0648	.0221
20	.9114	.3202	.0875	-.0696	.0298

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.3775	.0351	.0733	.0369	.0018
-2	-.2220	.0155	.0473	.0229	.0005
0	-.0560	.0077	.0250	.0071	-.0003
2	.0892	.0093	-.0033	-.0083	.0001
4	.2137	.0170	-.0297	-.0222	.0017
6	.3692	.0361	-.0518	-.0368	.0045
8	.5207	.0671	-.0726	-.0483	.0082
10	.6285	.1033	-.0808	-.0560	.0117
12	.7115	.1420	-.0831	-.0611	.0154
16	.8214	.2220	-.0845	-.0679	.0222
20	.9500	.3284	-.1052	-.0737	.0304
M = 1.00					
-4	-.3548	.0385	.0939	.0370	.0023
-2	-.2022	.0197	.0626	.0226	.0009
0	-.0396	.0123	.0199	.0217	-.0001
2	.0951	.0173	-.0117	-.0093	.0006
4	.2339	.0222	-.0509	-.0246	.0024
6	.3826	.0370	-.0716	-.0384	.0052
8	.5213	.0706	-.0962	-.0504	.0083
10	.6601	.1086	-.1217	-.0614	.0124
12	.7691	.1530	-.1341	-.0691	.0170
16	.9753	.2615	-.1699	-.0852	.0266
20	.0625	.3652	-.1640	-.0872	.0352
M = 1.05					
-4	-.3372	.0356	.0891	.0349	.0022
-2	-.1848	.0213	.0530	.0192	.0009
0	-.0324	.0138	.0147	.0031	-.0002
2	.0914	.0156	-.0112	-.0093	.0004
4	.2153	.0237	-.0472	-.0230	.0022
6	.3677	.0417	-.0804	-.0387	.0047
8	.5296	.0735	-.1048	-.0517	.0084
10	.6534	.1105	-.1277	-.0615	.0124
12	.7677	.1589	-.1513	-.0721	.0175
16	.9639	.2561	-.1862	-.0855	.0269
20	.1277	.3889	-.2177	-.0972	.0387
M = 1.10					
-4	-.3255	.0343	.0846	.0337	.0020
-2	-.1784	.0197	.0501	.0191	.0007
0	-.0221	.0128	.0136	.0028	-.0001
2	.0883	.0137	-.0118	-.0088	.0003
4	.2170	.0252	-.0447	-.0230	.0017
6	.3641	.0426	-.0776	-.0376	.0041
8	.4929	.0710	-.1030	-.0493	.0075
10	.6216	.1099	-.1242	-.0597	.0123
12	.7319	.1547	-.1445	-.0691	.0162
16	.9306	.2591	-.1794	-.0835	.0255
20	.0961	.3891	-.2139	-.0951	.0369

[redacted]

TABLE V.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(b) Half-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 0.50$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.5389	.1082	.0356	.0457	.0082
-2	-.4567	.0946	.0318	.0391	.0047
0	-.3471	.0882	.0255	.0282	.0047
2	-.2503	.0837	.0145	.0188	.0045
4	-.1553	.0828	.0052	.0088	.0047
6	-.0274	.0855	.0057	-.0025	.0055
8	.0913	.0991	.0170	-.0133	.0070
10	.1918	.1219	.0201	-.0211	.0092
12	.3197	.1519	.0248	-.0297	.0122
16	.5023	.2174	.0196	-.0408	.0180
20	.6668	.3065	.0204	-.0496	.0254
M = 0.80					
-4	-.5759	.1245	.0675	.0498	.0084
-2	-.4954	.1104	.0626	.0429	.0070
0	-.3715	.0950	.0670	.0308	.0054
2	-.2724	.0888	.0391	.0214	.0050
4	-.1573	.0826	.0227	.0102	.0051
6	-.0372	.0857	.0078	-.0011	.0057
8	.1053	.0950	.0051	-.0131	.0074
10	.2415	.1196	.0133	-.0225	.0098
12	.3529	.1461	.0225	-.0316	.0127
16	.5635	.2170	.0297	-.0449	.0191
20	.7257	.2984	.0364	-.0534	.0261
M = 0.85					
-4	-.5794	.1292	.0466	.0502	.0091
-2	-.4867	.1090	.0703	.0421	.0072
0	-.3708	.0963	.0579	.0308	.0057
2	-.2781	.0888	.0467	.0218	.0054
4	-.1506	.0819	.0256	.0091	.0052
6	-.0348	.0831	.0104	-.0020	.0056
8	.1159	.0963	.0021	-.0135	.0077
10	.2318	.1177	.0158	-.0232	.0100
12	.3940	.1494	.0238	-.0345	.0133
16	.6026	.2215	.0357	-.0480	.0199
20	.7370	.2988	.0450	-.0556	.0264
M = 0.90					
-4	-.5807	.1353	.0847	.0507	.0093
-2	-.4821	.1167	.0800	.0417	.0074
0	-.3725	.1026	.0708	.0317	.0061
2	-.2739	.0916	.0563	.0221	.0054
4	-.1424	.0862	.0328	.0096	.0054
6	-.0219	.0895	.0135	-.0030	.0062
8	.1205	.1004	.0020	-.0141	.0080
10	.2630	.1222	.0166	-.0251	.0104
12	.4054	.1517	.0341	-.0364	.0137
16	.6136	.2226	.0500	-.0507	.0204
20	.7670	.3098	.0588	-.0589	.0273

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.5523	.1390	.0858	.0491	.0095
-2	-.4168	.1183	.0718	.0382	.0078
0	-.3230	.1058	.0565	.0277	.0066
2	-.2188	.0975	.0411	.0175	.0061
4	-.1146	.0923	.0222	.0062	.0061
6	.0104	.0955	.0081	-.0054	.0068
8	.1459	.1027	-.0070	-.0161	.0083
10	.2918	.1287	-.0310	-.0289	.0112
12	.4272	.1577	-.0476	-.0396	.0145
16	.6419	.2293	-.0666	-.0541	.0210
20	.7919	.3206	-.0771	-.0626	.0284
M = 1.00					
-4	-.4780	.1329	.0710	.0442	.0095
-2	-.3784	.1130	.0547	.0341	.0076
0	-.2529	.1031	.0345	.0218	.0066
2	-.1693	.0982	.0229	.0128	.0063
4	-.0498	.0962	.0058	.0020	.0064
6	.0757	.1031	-.0106	-.0101	.0072
8	.1693	.1081	-.0196	-.0188	.0088
10	.3286	.1329	-.0432	-.0324	.0117
12	.4680	.1656	-.0688	-.0447	.0152
16	.6871	.2419	-.1040	-.0605	.0226
20	.8663	.3411	-.1236	-.0720	.0308
M = 1.05					
-4	-.4593	.1277	.0620	.0429	.0089
-2	-.3502	.1086	.0436	.0328	.0073
0	-.2392	.0972	.0305	.0213	.0063
2	-.1435	.0924	.0147	.0115	.0061
4	-.0383	.0896	.0014	.0011	.0062
6	.0670	.0943	-.0108	-.0095	.0069
8	.2010	.1115	-.0277	-.0211	.0087
10	.3349	.1353	-.0473	-.0333	.0114
12	.4689	.1658	-.0718	-.0449	.0149
16	.6890	.2420	-.1123	-.0618	.0221
20	.8804	.3516	-.1442	-.0754	.0315
M = 1.10					
-4	-.4471	.1187	.0581	.0419	.0084
-2	-.3326	.1021	.0437	.0315	.0067
0	-.2310	.0938	.0284	.0206	.0059
2	-.1386	.0892	.0137	.0112	.0056
4	-.0370	.0819	.0014	.0008	.0057
6	.0739	.0911	-.0135	-.0101	.0067
8	.2125	.1049	-.0260	-.0214	.0084
10	.3326	.1306	-.0472	-.0324	.0111
12	.4527	.1601	-.0717	-.0440	.0141
16	.6652	.2337	-.1084	-.0598	.0213
20	.8499	.3468	-.1935	-.0736	.0303

[redacted]

TABLE V.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Continued

(c) Half-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 0.75$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.5594	.1379	.0617	.0471	.0101
-2	-.4769	.1242	.0522	.0393	.0079
0	-.3742	.1151	.0530	.0298	.0059
2	-.2843	.1105	.0443	.0212	.0062
4	-.1926	.1105	.0391	.0118	.0059
6	-.0972	.1114	.0235	.0016	.0067
8	.0183	.1214	.0148	-.0086	.0079
10	.1376	.1023	.0133	-.0165	.0101
12	.2531	.1708	.0126	-.0243	.0126
16	.4310	.2329	.0135	-.0353	.0179
20	.6034	.3178	.0047	-.0437	.0251
M = 0.80					
-4	-.5554	.1522	.0674	.0473	.0102
-2	-.4461	.1312	.0592	.0372	.0083
0	-.3479	.1200	.0558	.0282	.0068
2	-.2672	.1151	.0496	.0202	.0068
4	-.1677	.1101	.0379	.0098	.0065
6	-.0683	.1107	.0284	-.0002	.0072
8	.0224	.1225	.0216	-.0094	.0085
10	.1566	.1380	.0191	-.0176	.0103
12	.2734	.1646	.0169	-.0255	.0131
16	.4722	.2264	.0096	-.0383	.0187
20	.6461	.3106	.0080	-.0486	.0257
M = 0.85					
-4	-.5463	.1516	.0668	.0463	.0106
-2	-.4417	.1331	.0594	.0363	.0072
0	-.3440	.1204	.0534	.0272	.0071
2	-.2673	.1146	.0463	.0194	.0069
4	-.1604	.1111	.0356	.0085	.0068
6	-.0535	.1111	.0273	-.0015	.0179
8	.0581	.1227	.0225	-.0105	.0088
10	.1627	.1354	.0184	-.0184	.0105
12	.2906	.1643	.0148	-.0264	.0134
16	.4765	.2245	.0028	-.0393	.0191
20	.6625	.3102	.0159	-.0503	.0260
M = 0.90					
-4	-.5319	.1554	.0702	.0455	.0105
-2	-.4286	.1346	.0627	.0358	.0085
0	-.3297	.1258	.0574	.0267	.0075
2	-.2528	.1160	.0493	.0181	.0070
4	-.1429	.1105	.0348	.0075	.0067
6	-.0374	.1160	.0261	-.0028	.0077
8	.0769	.1248	.0203	-.0122	.0090
10	.1868	.1423	.0144	-.0199	.0109
12	.3077	.1696	.0062	-.0297	.0140
16	.5055	.2309	.0092	-.0433	.0201
20	.6704	.3130	.0259	-.0527	.0266

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.5228	.1624	.0717	.0457	.0109
-2	-.4161	.1406	.0621	.0349	.0088
0	-.3137	.1270	.0532	.0251	.0078
2	-.2196	.1249	.0421	.0154	.0076
4	-.1255	.1156	.0295	.0054	.0074
6	-.0209	.1208	.0180	-.0045	.0082
8	.1025	.1312	.0126	-.0143	.0096
10	.2112	.1468	.0046	-.0227	.0115
12	.3283	.1718	-.0080	-.0319	.0143
16	.5541	.2405	-.0320	-.0480	.0210
20	.7214	.3290	-.0482	-.0573	.0282
M = 1.00					
-4	-.4899	.1633	.0636	.0431	.0107
-2	-.3759	.1434	.0530	.0325	.0091
0	-.2699	.1324	.0392	.0236	.0083
2	-.1800	.1254	.0258	.0128	.0079
4	-.0700	.1244	.0137	.0021	.0079
6	.0300	.1264	.0022	-.0082	.0087
8	.1600	.1404	-.0111	-.0188	.0103
10	.2599	.1573	-.0207	-.0277	.0123
12	.3999	.1882	-.0368	-.0394	.0157
16	.5999	.2549	-.0628	-.0539	.0219
20	.7738	.3494	-.0857	-.0651	.0301
M = 1.05					
-4	-.4666	.1587	.0622	.0411	.0105
-2	-.3553	.1396	.0510	.0312	.0088
0	-.2592	.1300	.0338	.0210	.0079
2	-.1632	.1243	.0214	.0117	.0078
4	-.0576	.1205	.0118	.0016	.0078
6	.0384	.1253	-.0016	-.0090	.0085
8	.1632	.1377	-.0148	-.0197	.0101
10	.2785	.1587	-.0323	-.0288	.0127
12	.4129	.1836	-.0454	-.0408	.0155
16	.6011	.2476	-.0486	-.0551	.0224
20	.7969	.3547	-.1127	-.0687	.0309
M = 1.10					
-4	-.4636	.1514	.0606	.0416	.0099
-2	-.3524	.1302	.0466	.0314	.0087
0	-.2411	.1219	.0323	.0203	.0076
2	-.1576	.1163	.0197	.0111	.0074
4	-.0556	.1145	.0104	.0016	.0072
6	.0464	.1163	-.0007	-.0087	.0077
8	.1762	.1302	-.0128	-.0202	.0097
10	.2967	.1579	-.0291	-.0308	.0119
12	.4080	.1856	-.0452	-.0402	.0150
16	.5934	.2502	-.0723	-.0537	.0212
20	.7789	.3481	-.1102	-.0670	.0294

TABLE V.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0 - Concluded

(d) Half-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 1.00$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.4532	.1361	.0453	.0386	.0112
-2	-.3651	.1224	.0492	.0309	.0094
0	-.2917	.1178	.0441	.0236	.0084
2	-.2275	.1178	.0426	.0165	.0082
4	-.1541	.1133	.0365	.0080	.0080
6	-.0716	.1169	.0364	.0000	.0082
8	.0257	.1306	.0319	-.0085	.0097
10	.1119	.1452	.0342	-.0141	.0114
12	.2037	.1681	.0382	-.0198	.0134
16	.3596	.2229	.0451	-.0283	.0181
20	.5137	.2996	.0408	-.0364	.0240
M = 0.80					
-4	-.4462	.1479	.0441	.0386	.0115
-2	-.3543	.1324	.0371	.0302	.0098
0	-.2660	.1238	.0364	.0213	.0086
2	-.1951	.1201	.0329	.0138	.0087
4	-.1044	.1170	.0244	.0045	.0086
6	-.0199	.1201	.0223	-.0039	.0089
8	.0758	.1324	.0224	-.0117	.0107
10	.1579	.1461	.0281	-.0172	.0123
12	.2436	.1696	.0337	-.0229	.0144
16	.3841	.2160	.0426	-.0300	.0185
20	.5482	.2933	.0329	-.0398	.0266
M = 0.85					
-4	-.4465	.1528	.0445	.0388	.0119
-2	-.3535	.1355	.0377	.0301	.0101
0	-.2604	.1268	.0360	.0211	.0089
2	-.1849	.1216	.0299	.0131	.0089
4	-.0977	.1181	.0204	.0038	.0089
6	-.0070	.1210	.0199	-.0050	.0093
8	.0825	.1326	.0181	-.0127	.0110
10	.1697	.1470	.0221	-.0185	.0126
12	.2535	.1673	.0280	-.0244	.0147
16	.3907	.2182	.0386	-.0314	.0194
20	.5418	.2825	.0285	-.0398	.0253
M = 0.90					
-4	-.4532	.1566	.0510	.0410	.0120
-2	-.3597	.1402	.0444	.0309	.0104
0	-.2629	.1293	.0397	.0217	.0093
2	-.1848	.1249	.0321	.0132	.0092
4	-.0869	.1194	.0199	.0032	.0090
6	.0044	.1238	.0161	-.0060	.0098
8	.1056	.1325	.0150	-.0141	.0114
10	.1936	.1512	.0170	-.0207	.0130
12	.2926	.1742	.0198	-.0270	.0154
16	.4246	.2235	.0270	-.0344	.0199
20	.5676	.2947	.0162	-.0429	.0255

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4479	.1605	.0549	.0390	.0122
-2	-.3538	.1449	.0477	.0303	.0104
0	-.2596	.1355	.0396	.0206	.0098
2	-.1758	.1292	.0306	.0124	.0097
4	-.0816	.1271	.0196	.0029	.0097
6	.0230	.1292	.0126	-.0072	.0103
8	.1214	.1397	.0053	-.0157	.0118
10	.2323	.1595	.0030	-.0233	.0138
12	.3056	.1782	.0095	-.0287	.0156
16	.4731	.2355	.0054	-.0394	.0210
20	.5819	.2991	.0038	-.0452	.0262
M = 1.00					
-4	-.4283	.1614	.0505	.0373	.0124
-2	-.3283	.1495	.0429	.0283	.0110
0	-.2322	.1435	.0342	.0184	.0103
2	-.1581	.1335	.0260	.0105	.0100
4	-.0681	.1335	.0139	.0011	.0100
6	.0420	.1385	.0035	-.0090	.0109
8	.1521	.1535	-.0085	-.0184	.0128
10	.2622	.1734	-.0157	-.0274	.0149
12	.3523	.1933	-.0157	-.0343	.0174
16	.5284	.2531	-.0259	-.0466	.0231
20	.6725	.3299	-.0371	-.0548	.0293
M = 1.05					
-4	-.4210	.1637	.0481	.0370	.0123
-2	-.3153	.1474	.0373	.0267	.0108
0	-.2191	.1397	.0270	.0168	.0105
2	-.1326	.1369	.0153	.0077	.0102
4	-.0442	.1330	.0071	-.0005	.0102
6	.0500	.1378	-.0042	-.0102	.0109
8	.1749	.1522	-.0143	-.0206	.0169
10	.2807	.1684	-.0235	-.0295	.0148
12	.3768	.1943	-.0315	-.0374	.0178
16	.5498	.2546	-.0220	-.0491	.0240
20	.7036	.3378	-.0671	-.0593	.0310
M = 1.10					
-4	-.4158	.1580	.0487	.0369	.0115
-2	-.3137	.1423	.0363	.0270	.0104
0	-.2209	.1340	.0237	.0167	.0100
2	-.1281	.1211	.0140	.0079	.0097
4	-.0446	.1275	.0049	-.0003	.0098
6	.0575	.1331	-.0031	-.0103	.0103
8	.1689	.1451	-.0140	-.0199	.0117
10	.2803	.1701	-.0231	-.0294	.0138
12	.3824	.1941	-.0335	-.0378	.0168
16	.5402	.2579	-.0507	-.0493	.0224
20	.6980	.3429	-.0690	-.0591	.0291

[redacted]

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0.25

(a) Plain wing

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.2912	.0136	.0232	.0323	.0018
-2	-.1711	.0082	.0090	.0179	.0015
0	-.0510	.0082	.0005	.0047	.0010
2	.0637	.0118	.0110	-.0086	.0008
4	.1820	.0208	.0177	-.0218	.0017
6	.3222	.0462	.0256	-.0369	.0050
8	.4587	.0752	.0203	-.0475	.0091
10	.5752	.1133	.0093	-.0561	.0133
12	.6607	.1550	.0058	-.0616	.0175
16	.8009	.2411	.0226	-.0695	.0258
20	.8828	.3326	.0240	-.0725	.0333
M = 0.80					
-4	-.3381	.0197	.0273	.0361	.0023
-2	-.1895	.0080	.0126	.0196	.0011
0	-.0433	.0049	.0036	.0042	.0008
2	.0780	.0062	.0068	-.0091	.0008
4	.2105	.0154	.0145	-.0239	.0023
6	.3592	.0358	.0251	-.0389	.0054
8	.5016	.0691	.0205	-.0498	.0095
10	.5969	.1036	.0105	-.0573	.0132
12	.6812	.1437	.0055	-.0626	.0175
16	.7926	.2238	.0014	-.0685	.0247
20	.8545	.3034	.0101	-.0715	.0317
M = 0.85					
-4	-.3401	.0207	.0287	.0365	.0022
-2	-.1967	.0092	.0165	.0208	.0010
0	-.0393	.0046	.0064	.0040	.0006
2	.0810	.0069	.0048	-.0097	.0006
4	.2198	.0150	.0149	-.0244	.0026
6	.3702	.0346	.0274	-.0398	.0058
8	.4998	.0634	.0271	-.0505	.0095
10	.6016	.0991	.0184	-.0581	.0133
12	.6826	.1382	.0098	-.0630	.0174
16	.7867	.2166	.0107	-.0688	.0245
20	.8608	.3064	.0212	-.0729	.0322
M = 0.90					
-4	-.3593	.0249	.0335	.0382	.0023
-2	-.2025	.0098	.0172	.0214	.0010
0	-.0501	.0065	.0065	.0056	.0006
2	.0871	.0087	.0069	-.0103	.0010
4	.2265	.0163	.0190	-.0261	.0025
6	.3811	.0358	.0347	-.0420	.0056
8	.5139	.0651	.0351	-.0522	.0095
10	.6098	.1008	.0320	-.0597	.0133
12	.7078	.1410	.0268	-.0653	.0174
16	.7949	.2147	.0254	-.0703	.0244
20	.8820	.3068	.0299	-.0755	.0323

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.3608	.0277	.0510	.0397	.0019
-2	-.2000	.0133	.0277	.0221	.0008
0	-.0351	.0051	.0123	.0044	.0005
2	.0887	.0082	-.0092	-.0106	.0010
4	.2371	.0144	-.0255	-.0274	.0029
6	.4021	.0339	-.0452	-.0436	.0059
8	.5423	.0647	-.0605	-.0560	.0104
10	.6268	.1027	-.0599	-.0618	.0141
12	.7114	.1417	-.0492	-.0671	.0184
16	.8351	.2217	-.0518	-.0750	.0259
20	.8969	.3111	-.0511	-.0798	.0342
M = 1.00					
-4	-.3444	.0314	.0721	.0396	.0022
-2	-.1968	.0147	.0399	.0224	.0009
0	-.0295	.0088	.0146	.0042	.0003
2	.0925	.0118	-.0095	-.0106	.0010
4	.2361	.0186	-.0422	-.0278	.0022
6	.3837	.0382	-.0681	-.0443	.0055
8	.5116	.0666	-.0740	-.0548	.0094
10	.6297	.1038	-.0806	-.0640	.0139
12	.7477	.1499	-.0932	-.0741	.0187
16	.9052	.2410	-.1041	-.0842	.0279
20	.0035	.3458	-.0948	-.0927	.0373
M = 1.05					
-4	-.3212	.0310	.0702	.0372	.0022
-2	-.1795	.0179	.0411	.0202	.0009
0	-.0189	.0122	.0041	.0024	.0004
2	.1190	.0160	-.0212	-.0125	.0009
4	.2456	.0245	-.0476	-.0283	.0022
6	.3874	.0414	-.0755	-.0445	.0049
8	.5196	.0687	-.0983	-.0591	.0088
10	.6330	.1063	-.1076	-.0680	.0134
12	.7369	.1486	-.1147	-.0760	.0180
16	.9070	.2390	-.1263	-.0890	.0276
20	.0393	.3584	-.1403	-.0987	.0393
M = 1.10					
-4	-.3105	.0273	.0679	.0375	.0021
-2	-.1699	.0155	.0372	.0203	.0008
0	-.0237	.0109	.0034	.0031	.0003
2	.0913	.0118	-.0199	-.0103	.0008
4	.2228	.0209	-.0475	-.0257	.0021
6	.3744	.0391	-.0743	-.0429	.0047
8	.5041	.0664	-.0961	-.0569	.0086
10	.6174	.1009	-.1064	-.0657	.0129
12	.7215	.1437	-.1158	-.0735	.0178
16	.8859	.2355	-.1280	-.0866	.0271
20	.0192	.3492	-.1400	-.0970	.0380

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0.25 - Continued

(b) Half-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 0.50$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.5216	.1090	.0124	.0509	.0083
-2	-.4304	.0953	.0073	.0404	.0063
0	-.3028	.0863	.0029	.0283	.0050
2	-.2024	.0863	.0042	.0173	.0048
4	-.0930	.0863	.0163	.0052	.0052
6	.0401	.0908	.0242	-.0087	.0057
8	.1714	.1090	.0362	-.0225	.0083
10	.2991	.1353	.0328	-.0326	.0117
12	.4359	.1707	.0248	-.0425	.0157
16	.6000	.2388	.0026	-.0520	.0223
20	.7642	.3269	.0196	-.0611	.0307
M = 0.80					
-4	-.5598	.1205	.0300	.0544	.0088
-2	-.4481	.0989	.0238	.0429	.0066
0	-.3178	.0853	.0153	.0295	.0051
2	-.2085	.0803	.0067	.0181	.0051
4	-.0943	.0773	.0053	.0053	.0051
6	.0335	.0803	.0152	-.0083	.0057
8	.1850	.0989	.0243	-.0223	.0084
10	.3153	.1267	.0265	-.0338	.0118
12	.4332	.1564	.0221	-.0423	.0152
16	.6008	.2244	.0026	-.0527	.0217
20	.7672	.3127	.0068	-.0625	.0299
M = 0.85					
-4	-.5590	.1212	.0355	.0538	.0090
-2	-.4476	.1016	.0304	.0439	.0069
0	-.3270	.0866	.0210	.0306	.0053
2	-.2111	.0831	.0140	.0185	.0053
4	-.0951	.0808	.0000	.0058	.0053
6	.0441	.0808	.0100	-.0083	.0058
8	.1902	.1016	.0227	-.0220	.0085
10	.3108	.1259	.0260	-.0330	.0117
12	.4569	.1582	.0179	-.0435	.0156
16	.6239	.2252	.0063	-.0536	.0219
20	.7700	.3118	.0058	-.0638	.0303
M = 0.90					
-4	-.5586	.1282	.0492	.0553	.0095
-2	-.4495	.1086	.0431	.0450	.0072
0	-.3295	.0923	.0300	.0310	.0056
2	-.2204	.0869	.0239	.0196	.0055
4	-.1004	.0815	.0058	.0064	.0054
6	.0415	.0847	.0075	-.0086	.0060
8	.1833	.1032	.0201	-.0219	.0085
10	.3251	.1249	.0278	-.0342	.0119
12	.4561	.1575	.0238	-.0445	.0153
16	.6415	.2281	.0159	-.0566	.0224
20	.7724	.3151	.0148	-.0650	.0302

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.5188	.1286	.0601	.0524	.0095
-2	-.4051	.1080	.0537	.0427	.0072
0	-.2914	.0926	.0415	.0294	.0061
2	-.1881	.0875	.0293	.0177	.0057
4	-.0641	.0823	.0153	.0046	.0053
6	.0599	.0854	-.0033	-.0090	.0061
8	.2046	.1029	-.0208	-.0234	.0088
10	.3389	.1266	-.0389	-.0361	.0123
12	.4733	.1564	-.0358	-.0460	.0157
16	.6800	.2315	-.0340	-.0612	.0229
20	.8040	.3169	-.0343	-.0697	.0307
M = 1.00					
-4	-.4855	.1277	.0622	.0509	.0093
-2	-.3671	.1081	.0476	.0470	.0073
0	-.2487	.0983	.0315	.0255	.0066
2	-.1401	.0934	.0159	.0137	.0061
4	-.0414	.0865	-.0022	.0010	.0062
6	.1026	.0914	-.0178	-.0125	.0070
8	.2349	.1101	-.0407	-.0277	.0095
10	.3928	.1327	-.0635	-.0429	.0133
12	.5309	.1671	-.0806	-.0556	.0174
16	.6987	.2358	-.0686	-.0666	.0242
20	.8664	.3341	-.0709	-.0776	.0334
M = 1.05					
-4	-.4662	.1227	.0578	.0497	.0086
-2	-.3374	.1057	.0409	.0362	.0068
0	-.2388	.0944	.0221	.0099	.0132
2	-.1194	.0896	.0090	.0115	.0057
4	-.0152	.0868	-.0057	-.0005	.0060
6	.1023	.0915	-.0240	-.0136	.0066
8	.2445	.1066	-.0463	-.0282	.0092
10	.3961	.1321	-.0700	-.0437	.0130
12	.5288	.1651	-.0905	-.0566	.0173
16	.7183	.2387	-.0986	-.0714	.0251
20	.8889	.3444	-.0970	-.0841	.0346
M = 1.10					
-4	-.4507	.1186	.0559	.0480	.0080
-2	-.3316	.1003	.0384	.0355	.0063
0	-.2217	.0876	.0216	.0221	.0063
2	-.1209	.0867	.0092	.0119	.0055
4	-.0110	.0821	-.0040	-.0006	.0056
6	.1081	.0894	-.0187	.0019	.0064
8	.2363	.1049	-.0423	-.0273	.0088
10	.3792	.1277	-.0685	-.0427	.0124
12	.5112	.1596	-.0882	-.0552	.0166
16	.7035	.2353	-.0989	-.0704	.0343
20	.8684	.3329	-.1192	-.0828	.0344

[redacted]

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0.25 - Continued

(c) Half-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 0.75$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.5145	.1208	.0252	.0496	.0084
-2	-.4134	.1061	.0210	.0398	.0064
0	-.3068	.0961	.0144	.0272	.0054
2	-.2297	.0961	.0079	.0184	.0054
4	-.1286	.0951	.0036	.0076	.0057
6	-.0239	.0961	.0032	-.0042	.0057
8	.1011	.1601	.0095	-.0168	.0076
10	.2113	.1345	.0096	-.0260	.0101
12	.3215	.1628	.0021	-.0348	.0134
16	.4869	.2250	.0278	-.0436	.0198
20	.6486	.3101	.0394	-.0530	.0277
M = 0.80					
-4	-.5315	.1351	.0338	.0507	.0086
-2	-.4127	.1121	.0290	.0405	.0063
0	-.3089	.1015	.0202	.0273	.0056
2	-.2126	.0965	.0178	.0169	.0056
4	-.1063	.0909	.0088	.0059	.0057
6	.0000	.0934	.0050	-.0056	.0059
8	.1251	.1090	.0033	-.0173	.0081
10	.2314	.1289	.0021	-.0270	.0107
12	.3564	.1588	.0051	-.0364	.0146
16	.5040	.2117	.0272	-.0445	.0200
20	.6603	.2939	.0262	-.0555	.0277
M = 0.85					
-4	-.5142	.1332	.0362	.0496	.0089
-2	-.4114	.1135	.0301	.0392	.0066
0	-.3039	.1018	.0214	.0268	.0057
2	-.2174	.0978	.0166	.0174	.0056
4	-.1099	.0931	.0061	.0054	.0058
6	.0023	.0931	.0019	-.0064	.0061
8	.1332	.1076	.0051	-.0194	.0085
10	.2454	.1280	.0019	-.0278	.0112
12	.3506	.1542	.0017	-.0370	.0149
16	.5142	.2118	.0244	-.0456	.0205
20	.6591	.2874	.0185	-.0564	.0280
M = 0.90					
-4	-.5058	.1369	.0363	.0486	.0090
-2	-.4024	.1161	.0285	.0382	.0069
0	-.2969	.1062	.0201	.0260	.0058
2	-.2045	.1018	.0157	.0164	.0060
4	-.0924	.0931	.0044	.0043	.0060
6	.0264	.0963	.0043	-.0079	.0063
8	.1473	.1117	.0042	-.0205	.0085
10	.2639	.1336	.0033	-.0296	.0116
12	.3650	.1577	.0006	-.0377	.0146
16	.5388	.2157	.0146	-.0488	.0206
20	.6707	.2923	.0088	-.0586	.0279

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4999	.1400	.0435	.0489	.0095
-2	-.3853	.1161	.0332	.0376	.0071
0	-.2812	.1089	.0271	.0260	.0066
2	-.1979	.1016	.0195	.0162	.0065
4	-.0854	.0954	.0094	.0041	.0063
6	.0312	.0985	.0041	-.0084	.0066
8	.1562	.1130	-.0023	-.0200	.0089
10	.2708	.1338	-.0069	-.0289	.0119
12	.3957	.1607	-.0071	-.0403	.0153
16	.5707	.2209	-.0048	-.0530	.0219
20	.7186	.3038	-.0128	-.0637	.0300
M = 1.00					
-4	-.4772	.1396	.0520	.0482	.0096
-2	-.3519	.1237	.0380	.0354	.0078
0	-.2426	.1109	.0271	.0228	.0074
2	-.1591	.1039	.0137	.0124	.0073
4	-.0517	.1020	.0018	.0005	.0071
6	.0597	.1039	-.0035	-.0109	.0074
8	.1690	.1188	-.0159	-.0226	.0096
10	.3082	.1386	-.0332	-.0361	.0129
12	.4275	.1663	-.0413	-.0463	.0165
16	.6045	.2277	-.0339	-.0582	.0227
20	.7755	.3168	-.0514	-.0710	.0320
M = 1.05					
-4	-.4525	.1340	.0489	.0466	.0087
-2	-.3532	.1160	.0319	.0350	.0074
0	-.2387	.1055	.0209	.0217	.0071
2	-.1375	.0998	.0104	.0111	.0070
4	-.0382	.0998	-.0004	.0002	.0070
6	.0573	.1046	-.0115	-.0118	.0072
8	.1814	.1188	-.0255	-.0244	.0093
10	.3246	.1388	-.0427	-.0401	.0126
12	.4487	.1673	-.0540	-.0500	.0162
16	.6301	.2329	-.0649	-.0641	.0237
20	.7886	.3232	-.0811	-.0760	.0331
M = 1.10					
-4	-.4430	.1250	.0453	.0452	.0084
-2	-.3322	.1103	.0315	.0337	.0070
0	-.2307	.1011	.0187	.0210	.0067
2	-.1384	.0965	.0089	.0103	.0064
4	-.0461	.0928	-.0011	.0002	.0063
6	.0738	.0974	-.0087	-.0122	.0070
8	.1938	.1149	-.0222	-.0256	.0090
10	.3230	.1360	-.0403	-.0382	.0122
12	.4337	.1167	-.0529	-.0484	.0156
16	.6091	.2297	-.0655	-.0624	.0231
20	.7844	.3235	-.0895	-.0762	.0329

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0.25 - Concluded

(d) Half-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 1.00$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.4466	.1318	.0178	.0428	.0097
-2	-.3455	.1199	.0125	.0323	.0081
0	-.2481	.1135	.0033	.0212	.0077
2	-.1709	.1107	.0027	.0124	.0077
4	-.0698	.1107	.0003	.0019	.0072
6	.0147	.1153	.0073	-.0087	.0074
8	.1231	.1336	.0146	-.0201	.0092
10	.2150	.1565	.0048	-.0271	.0116
12	.3069	.1794	.0051	-.0338	.0144
16	.4301	.2379	.0438	-.0398	.0196
20	.5734	.3120	.0576	-.0469	.0267
M = 0.80					
-4	-.4352	.1438	.0186	.0427	.0099
-2	-.3351	.1283	.0092	.0323	.0080
0	-.2289	.1189	.0042	.0195	.0072
2	-.1476	.1171	.0029	.0109	.0073
4	-.0538	.1127	.0034	.0001	.0074
6	.0463	.1183	.0074	-.0110	.0078
8	.2213	.1326	.0049	-.0217	.0101
10	.2589	.1544	.0025	-.0299	.0128
12	.3589	.1793	.0081	-.0367	.0162
16	.4690	.2329	.0407	-.0426	.0210
20	.5840	.3001	.0471	-.0495	.0274
M = 0.85					
-4	-.4371	.1455	.0199	.0432	.0105
-2	-.3249	.1286	.0111	.0312	.0081
0	-.2256	.1204	.0054	.0197	.0073
2	-.1437	.1170	.0017	.0107	.0075
4	-.0444	.1152	.0062	-.0008	.0076
6	.0549	.1193	.0090	-.0118	.0081
8	.1659	.1309	.0134	-.0231	.0105
10	.2711	.1548	.0049	-.0308	.0131
12	.3705	.1810	.0057	-.0379	.0164
16	.4815	.2333	.0352	-.0438	.0214
20	.5773	.2944	.0412	-.0500	.0222
M = 0.90					
-4	-.4421	.1468	.0226	.0437	.0106
-2	-.3234	.1270	.0132	.0315	.0082
0	-.2156	.1161	.0093	.0192	.0078
2	-.1386	.1161	.0034	.0107	.0079
4	-.0396	.1128	.0057	-.0006	.0078
6	.0594	.1161	.0111	-.0119	.0083
8	.1804	.1325	.0126	-.0235	.0109
10	.2794	.1511	.0074	-.0315	.0137
12	.3674	.1763	.0008	-.0386	.0169
16	.4993	.2289	.0255	-.0458	.0220
20	.5917	.2968	.0367	-.0514	.0281

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4228	.1462	.0259	.0423	.0105
-2	-.3187	.1307	.0145	.0316	.0088
0	-.2145	.1213	.0094	.0194	.0084
2	-.1375	.1213	.0010	.0102	.0086
4	-.0271	.1130	-.0049	-.0014	.0080
6	.0771	.1203	-.0094	-.0134	.0088
8	.1916	.1358	-.0147	-.0250	.0113
10	.2853	.1555	-.0121	-.0326	.0141
12	.3895	.1804	-.0069	-.0410	.0175
16	.5207	.2344	.0093	-.0496	.0228
20	.6186	.3018	.0210	-.0549	.0293
M = 1.00					
-4	-.4036	.1495	.0278	.0412	.0107
-2	-.2943	.1346	.0155	.0291	.0093
0	-.1949	.1267	.0062	.0177	.0090
2	-.1054	.1198	-.0034	.0247	.0087
4	-.0139	.1198	-.0139	-.0039	.0087
6	.0895	.1277	-.0199	-.0155	.0094
8	.2028	.1435	-.0347	-.0278	.0121
10	.3122	.1614	-.0384	-.0380	.0153
12	.4016	.1861	-.0304	-.0456	.0184
16	.5508	.2435	-.0123	-.0541	.0239
20	.6900	.3227	-.0135	-.0632	.0314
M = 1.05					
-4	-.3971	.1483	.0243	.0404	.0105
-2	-.2921	.1340	.0108	.0281	.0090
0	-.1776	.1274	.0044	.0155	.0087
2	-.0916	.1217	-.0063	.0060	.0084
4	-.0057	.1198	-.0140	-.0046	.0085
6	.0993	.1283	-.0205	-.0160	.0090
8	.2138	.1416	-.0308	-.0283	.0113
10	.3284	.1626	-.0428	-.0397	.0147
12	.4239	.1882	-.0487	-.0487	.0185
16	.5862	.2481	-.0425	-.0602	.0251
20	.7103	.3308	-.0489	-.0698	.0330
M = 1.10					
-4	-.3931	.1434	.0234	.0398	.0099
-2	-.2824	.1268	.0099	.0277	.0085
0	-.1753	.1204	.0028	.0153	.0083
2	-.0941	.1158	-.0066	.0062	.0080
4	-.0055	.1130	-.0142	-.0049	.0085
6	.0960	.1213	-.0207	-.0155	.0085
8	.1975	.1388	-.0336	-.0286	.0115
10	.3267	.1608	-.0413	-.0397	.0142
12	.4190	.1847	-.0471	-.0479	.0175
16	.5666	.2472	-.0441	-.0590	.0241
20	.7143	.3317	-.0561	-.0700	.0325

TABLE VII.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0.5

(a) Plain wing

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.2435	.0128	.0095	.0314	.0010
-2	-.1428	.0109	.0012	.0185	.0005
0	-.0238	.0119	.0011	.0038	.0002
2	.0732	.0146	.0053	-.0085	.0003
4	.1849	.0237	.0062	-.0220	.0012
6	.3205	.0474	.0132	-.0376	.0044
8	.4615	.0784	.0080	-.0502	.0085
10	.5768	.1158	.0036	-.0593	.0136
12	.6666	.1586	.0277	-.0649	.0179
16	.8002	.2425	.0528	-.0724	.0264
20	.8698	.3346	.0590	-.0753	.0345
M = 0.80					
-4	-.2834	.0173	.0084	.0113	.0012
-2	-.1529	.0099	.0010	.0181	.0003
0	-.0286	.0068	.0008	.0036	.0001
2	.0845	.0087	.0036	-.0096	.0005
4	.2038	.0173	.0204	-.0230	.0024
6	.3480	.0390	.0113	-.0394	.0057
8	.4810	.0606	.0083	-.0511	.0098
10	.5929	.0947	.0048	-.0596	.0141
12	.6787	.1324	.0223	-.0653	.0183
16	.7781	.2092	.0352	-.0707	.0254
20	.8328	.2587	.0305	-.0734	.0323
M = 0.85					
-4	-.2765	.0162	.0073	.0328	.0012
-2	-.1487	.0098	.0041	.0179	.0004
0	-.0267	.0058	.0020	.0036	.0001
2	.0836	.0081	.0050	-.0099	.0004
4	.2172	.0150	.0009	-.0239	.0022
6	.3450	.0312	.0149	-.0398	.0053
8	.4902	.0596	.0096	-.0521	.0096
10	.5925	.0914	.0018	-.0601	.0134
12	.6715	.1290	.0152	-.0651	.0174
16	.7714	.2036	.0259	-.0708	.0245
20	.8295	.2851	.0223	-.0740	.0315
M = 0.90					
-4	-.2885	.0212	.0097	.0337	.0012
-2	-.1595	.0120	.0027	.0182	.0004
0	-.0262	.0071	.0021	.0034	.0001
2	.0984	.0087	.0001	-.0103	.0007
4	.2229	.0152	.0019	-.0247	.0022
6	.3672	.0316	.0151	-.0415	.0052
8	.4961	.0598	.0207	-.0543	.0092
10	.6054	.0941	.0075	-.0618	.0131
12	.6819	.1306	.0103	-.0659	.0169
16	.7737	.2029	.0152	-.0721	.0241
20	.8349	.2807	.0086	-.0762	.0316

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.2608	.0170	.0150	.0346	.0010
-2	-.1511	.0098	.0101	.0177	.0005
0	-.0166	.0067	.0053	.0030	.0000
2	.0973	.0082	-.0025	-.0106	.0008
4	.2277	.0144	-.0079	-.0257	.0023
6	.3664	.0294	-.0226	-.0417	.0048
8	.5071	.0567	-.0333	-.0549	.0094
10	.6086	.0917	-.0282	-.0620	.0133
12	.6976	.1304	-.0177	-.0691	.0172
16	.7969	.2025	-.0044	-.0753	.0245
20	.8528	.2813	-.0073	-.0789	.0322
M = 1.00					
-4	-.2470	.0177	.0385	.0355	.0010
-2	-.1264	.0138	.0259	.0186	.0005
0	-.0138	.0069	.0088	.0030	.0001
2	.0929	.0113	-.0057	-.0102	.0008
4	.2312	.0162	-.0190	-.0257	.0023
6	.3695	.0310	-.0363	-.0426	.0045
8	.4979	.0556	-.0563	-.0570	.0087
10	.5868	.0856	-.0466	-.0626	.0125
12	.6955	.1249	-.0568	-.0727	.0172
16	.8397	.2066	-.0467	-.0829	.0258
20	.9365	.3000	-.0323	-.0880	.0344
M = 1.05					
-4	-.2427	.0217	.0465	.0341	.0012
-2	-.1384	.0161	.0276	.0179	.0004
0	-.0209	.0113	.0060	.0032	.0001
2	.0891	.0113	-.0121	-.0106	.0005
4	.1991	.0170	-.0288	-.0235	.0022
6	.3319	.0312	-.0506	-.0406	.0042
8	.4684	.0500	-.0719	-.0568	.0079
10	.5822	.0793	-.0779	-.0674	.0120
12	.6865	.1190	-.0845	-.0755	.0172
16	.8306	.1964	-.0806	-.0851	.0259
20	.9558	.2993	-.0910	-.0958	.0369
M = 1.10					
-4	-.2435	.0210	.0453	.0337	.0011
-2	-.1355	.0155	.0244	.0172	.0004
0	-.0146	.0100	.0035	.0016	.0000
2	.0861	.0119	-.0129	-.0102	.0004
4	.1868	.0173	-.0306	-.0235	.0022
6	.3204	.0301	-.0482	-.0392	.0037
8	.4486	.0501	-.0692	-.0541	.0069
10	.5621	.0757	-.0847	-.0659	.0110
12	.6628	.1158	-.0840	-.0737	.0154
16	.8185	.1960	-.0928	-.0862	.0256
20	.9558	.2972	-.1011	-.0972	.0369

[redacted]

TABLE VII.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0.5 - Continued

(b) Half-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 0.50$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.4907	.0845	.0115	.0509	.0083
-2	-.3763	.0726	.0036	.0390	.0059
0	-.2564	.0716	.0060	.0248	.0044
2	-.1642	.0707	.0031	.0150	.0044
4	-.0627	.0716	.0009	.0032	.0047
6	.0480	.0790	.0040	-.0100	.0051
8	.1863	.0992	.0084	-.0250	.0076
10	.3062	.1277	.0023	-.0352	.0115
12	.4354	.1635	.0118	-.0455	.0157
16	.5959	.2315	.0510	-.0550	.0228
20	.7231	.3150	.0692	-.0637	.0312
M = 0.80					
-4	-.5123	.0954	.0173	.0530	.0082
-2	-.3871	.0780	.0107	.0397	.0055
0	-.2706	.0705	.0047	.0262	.0046
2	-.1616	.0642	.0050	.0144	.0046
4	-.0551	.0636	.0053	.0026	.0046
6	.0664	.0705	.0067	-.0107	.0052
8	.1954	.0892	.0036	-.0247	.0079
10	.3269	.1172	.0004	-.0360	.0114
12	.4334	.1422	.0162	-.0440	.0146
16	.5962	.2083	.0450	-.0543	.0215
20	.7165	.2869	.0522	-.0635	.0294
M = 0.85					
-4	-.5128	.0979	.0211	.0515	.0080
-2	-.3934	.0799	.0112	.0401	.0056
0	-.2693	.0717	.0463	.0261	.0047
2	-.1616	.0659	.0064	.0144	.0044
4	-.0445	.0641	.0101	.0024	.0045
6	.0726	.0688	.0079	-.0106	.0053
8	.1897	.0863	.0023	-.0247	.0080
10	.3231	.1107	.0002	-.0367	.0116
12	.4355	.1399	.0171	-.0447	.0147
16	.5877	.2028	.0407	-.0541	.0213
20	.7165	.2809	.0416	-.0648	.0298
M = 0.90					
-4	-.5157	.1021	.0281	.0532	.0081
-2	-.4055	.0856	.0166	.0410	.0057
0	-.2711	.0746	.0125	.0264	.0046
2	-.1631	.0691	.0120	.0155	.0045
4	-.0419	.0636	.0115	.0023	.0045
6	.0683	.0691	.0094	-.0109	.0052
8	.2006	.0856	.0003	-.0245	.0079
10	.3218	.1075	.0029	-.0359	.0114
12	.4320	.1350	.0144	-.0440	.0145
16	.5973	.1975	.0309	-.0562	.0212
20	.7295	.2831	.0284	-.0666	.0300

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4780	.1018	.0353	.0504	.0081
-2	-.3736	.0842	.0209	.0388	.0058
0	-.2484	.0707	.0166	.0250	.0048
2	-.1440	.0707	.0166	.0138	.0048
4	-.0501	.0655	.0112	.0021	.0048
6	.0751	.0707	.0123	-.0104	.0053
8	.2004	.0863	.0014	-.0238	.0081
10	.3256	.1070	-.0030	-.0363	.0113
12	.4300	.1330	.0079	-.0443	.0146
16	.6179	.1985	.0182	-.0586	.0215
20	.7431	.2785	.0122	-.0693	.0304
M = 1.00					
-4	-.4362	.1002	.0384	.0486	.0077
-2	-.3326	.0863	.0331	.0367	.0064
0	-.2271	.0773	.0277	.0234	.0056
2	-.1175	.0724	.0188	.0106	.0053
4	-.0279	.0674	.0137	.0003	.0053
6	.0817	.0734	.0086	-.0111	.0059
8	.2111	.0873	-.0056	-.0261	.0086
10	.3406	.1081	-.0190	-.0389	.0118
12	.4601	.1368	-.0157	-.0483	.0155
16	.6294	.1963	-.0006	-.0611	.0221
20	.7648	.2836	-.0132	-.0730	.0314
M = 1.05					
-4	-.4091	.0933	.0333	.0453	.0065
-2	-.2982	.0790	.0257	.0326	.0051
0	-.1893	.0695	.0194	.0200	.0039
2	-.0975	.0657	.0071	.0090	-.0045
4	-.0038	.0666	-.0002	-.0021	.0003
6	.1071	.0733	-.0063	-.0152	.0017
8	.2409	.0885	-.0148	-.0283	.0053
10	.3460	.1066	-.0337	-.0406	.0114
12	.4607	.1352	-.0435	-.0521	.0148
16	.6423	.1970	-.0507	-.0676	.0223
20	.7914	.2817	-.0545	-.0805	.0319
M = 1.10					
-4	-.3951	.0855	.0342	.0438	.0059
-2	-.2936	.0754	.0275	.0327	.0133
0	-.1828	.0671	.0235	.0196	.0051
2	-.0997	.0625	.0109	.0090	.0044
4	-.0074	.0625	.0014	-.0021	.0046
6	.1034	.0708	-.0032	-.0145	.0051
8	.2234	.0864	-.0159	-.0281	.0074
10	.3434	.1066	-.0324	-.0408	.0108
12	.4450	.1351	-.0463	-.0515	.0143
16	.6296	.1967	-.0564	-.0677	.0222
20	.7866	.2841	-.0698	-.0810	.0322

[redacted]

TABLE VII.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0.5 - Continued

(c) Half-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 0.75$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.4925	.1001	.0048	.0513	.0078
-2	-.3911	.0863	.0070	.0396	.0057
0	-.2804	.0817	.0065	.0262	.0047
2	-.1882	.0817	.0087	.0156	.0049
4	-.0849	.0817	.0011	.0044	.0049
6	.0111	.0863	.0034	-.0073	.0054
8	.1586	.1047	.0053	-.0227	.0076
10	.2638	.1323	.0008	-.0322	.0108
12	.3745	.1681	.0081	-.0414	.0148
16	.5313	.2351	.0475	-.0502	.0216
20	.6696	.3150	.0673	-.0596	.0300
M = 0.80					
-4	-.4909	.1097	.0048	.0502	.0080
-2	-.3782	.0923	.0037	.0374	.0056
0	-.2655	.0835	.0027	.0250	.0049
2	-.1803	.0804	.0033	.0149	.0050
4	-.0714	.0773	.0008	.0030	.0050
6	.0413	.0804	.0005	-.0092	.0055
8	.1665	.0979	.0025	-.0227	.0078
10	.2855	.1209	.0004	-.0329	.0117
12	.3982	.1490	.0152	-.0416	.0153
16	.5309	.2082	.0502	-.0490	.0212
20	.6637	.2843	.0537	-.0594	.0289
M = 0.85					
-4	-.4847	.1131	.0086	.0499	.0079
-2	-.3676	.0938	.0007	.0373	.0057
0	-.2505	.0839	.0015	.0243	.0050
2	-.1709	.0810	.0014	.0146	.0051
4	-.0632	.0764	.0010	.0026	.0051
6	.0421	.0810	.0003	-.0094	.0057
8	.1709	.0956	.0012	-.0225	.0079
10	.2950	.1201	.0001	-.0335	.0121
12	.3887	.1434	.0147	-.0407	.0205
16	.5338	.2034	.0467	-.0501	.0212
20	.6603	.2792	.0465	-.0595	.0289
M = 0.90					
-4	-.4779	.1119	.0131	.0500	.0079
-2	-.3612	.0954	.0019	.0373	.0057
0	-.2467	.0844	.0025	.0236	.0050
2	-.1696	.0817	.0000	.0145	.0053
4	-.0595	.0773	.0010	.0025	.0053
6	.0507	.0817	.0012	-.0100	.0058
8	.1828	.0965	.0015	-.0236	.0088
10	.3039	.1179	.0021	-.0334	.0117
12	.3920	.1442	.0180	-.0409	.0145
16	.4471	.2051	.0232	-.0526	.0213
20	.6806	.2818	.0322	-.0626	.0295

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4634	.1133	.0208	.0492	.0082
-2	-.3590	.0977	.0065	.0368	.0057
0	-.2484	.0873	.0066	.0241	.0052
2	-.1566	.0811	.0053	.0139	.0052
4	-.0459	.0790	.0069	.0014	.0053
6	.0689	.0821	.0058	-.0111	.0059
8	.1837	.0977	-.0006	-.0236	.0086
10	.3048	.1154	-.0006	-.0345	.0120
12	.3924	.1393	.0130	-.0409	.0150
16	.5594	.1964	.0291	-.0534	.0213
20	.6951	.2744	.0164	-.0652	.0299
M = 1.00					
-4	-.4423	.1141	.0267	.0474	.0175
-2	-.3347	.0982	.0210	.0355	.0066
0	-.2311	.0883	.0175	.0229	.0063
2	-.1355	.0804	.0151	.0128	.0064
4	-.0398	.0804	.0066	.0009	.0058
6	.0757	.0863	.0071	-.0113	.0066
8	.1753	.0962	.0020	-.0225	.0086
10	.3048	.1647	-.0173	-.0362	.0121
12	.4144	.1419	-.0158	-.0461	.0154
16	.5738	.1974	.0044	-.0572	.0218
20	.7233	.2768	-.0115	-.0705	.0308
M = 1.05					
-4	-.4150	.1123	.0306	.0455	.0079
-2	-.3289	.0962	.0191	.0339	.0065
0	-.2142	.0895	.0170	.0215	.0061
2	-.1281	.0847	.0082	.0106	.0059
4	-.0325	.0800	.0056	.0005	.0058
6	.0631	.0847	-.0001	-.0110	.0066
8	.1874	.0971	-.0090	-.0244	.0087
10	.3117	.1181	-.0283	-.0388	.0122
12	.4169	.1409	-.0369	-.0491	.0157
16	.5890	.1990	-.0323	-.0629	.0228
20	.7515	.2799	-.0418	-.0763	.0322
M = 1.10					
-4	-.4287	.1049	.0245	.0452	.0075
-2	-.3178	.0911	.0168	.0329	.0062
0	-.2088	.0837	.0276	.0207	.0059
2	-.1238	.0782	.0060	.0101	.0057
4	-.0222	.0773	.0023	-.0011	.0057
6	.0702	.0819	.0003	-.0119	.0062
8	.1811	.0938	-.0096	-.0242	.0081
10	.3012	.1619	-.0264	-.0372	.0112
12	.4120	.1417	-.0341	-.0483	.0147
16	.5783	.1969	-.0409	-.0625	.0222
20	.7298	.2797	-.0643	-.0771	.0322

TABLE VII.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 0.5 - Concluded

(d) Half-span spoiler slot deflector; $\delta_s = -0.075c$; $\delta_d/\delta_s = 1.00$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.4283	.1057	.0124	.0430	.0089
-2	-.3175	.0937	.0239	.0308	.0073
0	-.2252	.0919	.0173	.0199	.0067
2	-.1606	.0919	.0166	.0119	.0067
4	-.0701	.0919	.0108	.0019	.0067
6	.0185	.0983	.0103	-.0090	.0069
8	.1348	.1149	.0164	-.0220	.0088
10	.2455	.1397	.0104	-.0311	.0118
12	.3470	.1673	.0058	-.0394	.0153
16	.4578	.2224	.0434	-.0450	.0211
20	.5778	.2941	.0717	-.0522	.0283
M = 0.80					
-4	-.4050	.1155	.0065	.0416	.0087
-2	-.3022	.1011	.0173	.0304	.0068
0	-.2056	.0968	.0139	.0183	.0064
2	-.1216	.0936	.0112	.0092	.0065
4	-.0376	.0905	.0099	-.0008	.0065
6	.0639	.0949	.0071	-.0123	.0069
8	.1793	.1117	.0095	-.0242	.0092
10	.2733	.1311	.0050	-.0327	.0125
12	.3674	.1573	.0126	-.0403	.0159
16	.4802	.2091	.0481	-.0462	.0213
20	.5868	.2747	.0679	-.0526	.0278
M = 0.85					
-4	-.4056	.1167	.0041	.0419	.0088
-2	-.2931	.1021	.0170	.0288	.0069
0	-.1958	.0963	.0128	.0175	.0065
2	-.1172	.0934	.0118	.0083	.0067
4	-.0258	.0916	.0077	-.0018	.0067
6	.0739	.0963	.0065	-.0130	.0073
8	.1911	.1097	.0053	-.0250	.0095
10	.2849	.1302	.0058	-.0341	.0135
12	.3786	.1547	.0119	-.0407	.0166
16	.4959	.2054	.0453	-.0477	.0223
20	.5932	.2720	.0592	-.0536	.0277
M = 0.90					
-4	-.4015	.1197	.0039	.0417	.0093
-2	-.2912	.1038	.0172	.0283	.0071
0	-.1853	.0989	.0122	.0174	.0069
2	-.1059	.0934	.0105	.0081	.0070
4	-.0154	.0934	.0104	-.0021	.0070
6	.0838	.0950	.0077	-.0140	.0074
8	.1941	.1109	.0058	-.0255	.0101
10	.2934	.1263	.0062	-.0348	.0135
12	.3817	.1538	.0118	-.0406	.0164
16	.5074	.2060	.0410	-.0489	.0225
20	.6023	.2741	.0507	-.0557	.0293

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.3907	.1222	-.0053	.0412	.0092
-2	-.2758	.1066	-.0138	.0277	.0071
0	-.1818	.0988	-.0089	.0170	.0071
2	-.0982	.0936	-.0059	.0081	.0070
4	-.0146	.0947	-.0055	-.0025	.0069
6	.0898	.0988	-.0038	-.0134	.0074
8	.2048	.1404	-.0034	-.0256	.0098
10	.2988	.1332	-.0096	-.0358	.0134
12	.3928	.1560	.0114	-.0417	.0162
16	.5182	.2107	.0287	-.0519	.0225
20	.6227	.2757	.0364	-.0592	.0293
M = 1.00					
-4	-.3649	.1221	.0018	.0388	.0091
-2	-.2731	.1092	-.0027	.0278	.0079
0	-.1735	.1042	.0042	.0167	.0079
2	-.0837	.0963	-.0020	.0065	.0073
4	-.0040	.0993	-.0054	-.0038	.0075
6	.0857	.1042	-.0052	-.0142	.0082
8	.1954	.1191	-.0138	-.0266	.0103
10	.3050	.1340	-.0191	-.0376	.0136
12	.4047	.1598	-.0153	-.0461	.0169
16	.5343	.2104	.0156	-.0538	.0226
20	.6540	.2829	.0081	-.0649	.0306
M = 1.05					
-4	-.3770	.1239	.0059	.0393	.0090
-2	-.2813	.1143	.0014	.0279	.0081
0	-.1761	.1048	.0010	.0164	.0077
2	-.0957	.1000	-.0069	.0066	.0073
4	-.0038	.0991	-.0084	-.0041	.0073
6	.0919	.1048	-.0126	-.0151	.0079
8	.1971	.1162	-.0184	-.0274	.0099
10	.3119	.1353	-.0325	-.0398	.0131
12	.4172	.1620	-.0376	-.0500	.0171
16	.5511	.2163	-.0211	-.0598	.0234
20	.6947	.2954	-.0343	-.0721	.0323
M = 1.10					
-4	-.3640	.1159	.0064	.0388	.0087
-2	-.2698	.1030	.0007	.0269	.0078
0	-.1700	.0994	.0003	.0155	.0074
2	-.0942	.0938	-.0063	.0063	.0071
4	-.0074	.0938	-.0087	-.0038	.0072
6	.0887	.1012	-.0113	-.0150	.0075
8	.2088	.1122	-.0166	-.0280	.0096
10	.3012	.1362	-.0313	-.0394	.0125
12	.4028	.1647	-.0374	-.0489	.0164
16	.5414	.2162	-.0273	-.0596	.0226
20	.6892	.2944	-.0387	-.0728	.0319

[redacted]

TABLE VIII. - AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 1

(a) Plain wing

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.2276	.0199	.0205	.0270	.0012
-2	-.1402	.0154	.0150	.0164	.0017
0	-.0273	.0127	.0072	.0031	.0012
2	.0637	.0172	.0068	-.0084	.0012
4	.1511	.0227	.0027	-.0195	.0017
6	.2640	.0363	.0193	-.0320	.0027
8	.3823	.0580	.0177	-.0468	.0067
10	.4916	.0888	.0214	-.0571	.0111
12	.5972	.1260	.0463	-.0647	.0160
16	.7246	.1985	.0906	-.0722	.0241
20	.7829	.2756	.1112	-.0747	.0313
M = 0.80					
-4	-.2473	.0191	.0321	.0281	.0012
-2	-.1360	.0135	.0169	.0159	.0012
0	-.0247	.0111	.0071	.0026	.0012
2	.0594	.0117	.0037	-.0079	.0011
4	.1608	.0179	.0079	-.0200	.0019
6	.2634	.0271	.0193	-.0322	.0031
8	.3895	.0474	.0252	-.0463	.0071
10	.5008	.0763	.0278	-.0565	.0113
12	.5936	.1090	.0525	-.0642	.0158
16	.6999	.1736	.0687	-.0718	.0233
20	.7346	.2426	.0950	-.0709	.0295
M = 0.85					
-4	-.2423	.0195	.0309	.0283	.0011
-2	-.1385	.0126	.0199	.0164	.0012
0	-.0300	.0092	.0101	.0032	.0011
2	.0646	.0109	.0038	-.0083	.0011
4	.1569	.0167	.0047	-.0198	.0020
6	.2700	.0259	.0210	-.0324	.0032
8	.3808	.0425	.0158	-.0459	.0066
10	.4847	.0684	.0178	-.0563	.0111
12	.5770	.1000	.0328	-.0634	.0157
16	.7039	.1660	.0725	-.0715	.0232
20	.7386	.2350	.0838	-.0721	.0299
M = 0.90					
-4	-.2437	.0211	.0306	.0283	.0011
-2	-.1458	.0146	.0226	.0166	.0012
0	-.0326	.0103	.0124	.0028	.0009
2	.0609	.0103	.0043	-.0078	.0012
4	.1523	.0152	.0034	-.0194	.0023
6	.2720	.0238	.0183	-.0328	.0033
8	.3873	.0401	.0197	-.0464	.0063
10	.5004	.0661	.0221	-.0564	.0111
12	.5874	.0969	.0331	-.0637	.0159
16	.7071	.1619	.0574	-.0717	.0234
20	.7615	.2323	.0750	-.0753	.0308

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.2378	.0216	-.0197	.0287	.0011
-2	-.1344	.0129	-.0157	.0158	.0009
0	-.0248	.0098	-.0109	.0027	.0008
2	.0682	.0103	-.0026	-.0083	.0010
4	.1654	.0139	.0076	-.0202	.0021
6	.2750	.0206	.0160	-.0333	.0034
8	.3928	.0355	.0182	-.0469	.0060
10	.4859	.0576	.0116	-.0577	.0098
12	.5789	.0896	.0118	-.0655	.0158
16	.7030	.1565	.0440	-.0735	.0241
20	.7960	.2362	.0598	-.0800	.0326
M = 1.00					
-4	-.2460	.0240	-.0132	.0293	.0012
-2	-.1279	.0142	-.0065	.0160	.0009
0	-.0197	.0108	.0042	.0025	.0006
2	.0689	.0108	-.0047	-.0084	.0011
4	.1575	.0142	-.0088	-.0209	.0022
6	.2756	.0216	.0032	-.0342	.0035
8	.3799	.0363	-.0098	-.0480	.0063
10	.4783	.0559	-.0093	-.0597	.0094
12	.5669	.0828	-.0187	-.0696	.0142
16	.6987	.1514	.0261	-.0767	.0241
20	.7972	.2274	.0337	-.0826	.0328
M = 1.05					
-4	-.2370	.0255	-.0053	.0292	.0018
-2	-.1327	.0179	-.0009	.0162	.0013
0	-.0190	.0151	-.0027	.0024	.0010
2	.0664	.0151	-.0044	-.0083	.0013
4	.1517	.0160	-.0119	-.0198	.0026
6	.2559	.0255	-.0103	-.0325	.0039
8	.3697	.0373	-.0108	-.0463	.0061
10	.4739	.0585	-.0196	-.0592	.0098
12	.5498	.0798	-.0310	-.0685	.0139
16	.6919	.1411	-.0206	-.0795	.0238
20	.8152	.2213	-.0154	-.0893	.0342
M = 1.10					
-4	-.2284	.0268	-.0006	.0282	.0021
-2	-.1224	.0177	.0031	.0155	.0017
0	-.0274	.0155	-.0046	.0025	.0013
2	.0548	.0155	-.0095	-.0078	.0016
4	.1462	.0173	-.0146	-.0192	.0027
6	.2558	.0246	-.0073	-.0319	.0039
8	.3472	.0368	-.0122	-.0449	.0063
10	.4477	.0541	-.0242	-.0565	.0089
12	.5299	.0760	-.0365	-.0668	.0134
16	.6760	.1360	-.0180	-.0779	.0225
20	.8039	.2156	-.0268	-.0886	.0338

[redacted]

TABLE VIII.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 1 - Continued

(b) Full-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 0.50$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.4833	.0817	.0285	.0532	.0343
-2	-.4267	.0844	.0329	.0468	.0348
0	-.3410	.0872	.0543	.0403	.0348
2	-.2662	.0881	.0542	.0311	.0352
4	-.1568	.0899	.0846	.0214	.0337
6	-.0529	.0908	.0696	.0086	.0313
8	.0930	.1035	.0728	-.0069	.0312
10	.2371	.1198	.0601	-.0231	.0315
12	.3556	.1471	.0680	-.0336	.0340
16	.4942	.1970	.0855	-.0451	.0398
20	.6219	.2633	.1066	-.0545	.0475
M = 0.80					
-4	-.4611	.0957	.0465	.0512	.0334
-2	-.3867	.0907	.0487	.0430	.0339
0	-.2975	.0876	.0744	.0352	.0341
2	-.2070	.0833	.0867	.0267	.0332
4	-.1202	.0771	.0853	.0172	.0313
6	-.0087	.0802	.0857	.0052	.0299
8	.1215	.0876	.0796	-.0088	.0292
10	.2454	.1000	.0658	-.0223	.0299
12	.3508	.1210	.0735	-.0313	.0319
16	.4958	.1679	.0994	-.0425	.0371
20	.6148	.2314	.1131	-.0517	.0441
M = 0.85					
-4	-.4445	.0951	.0521	.0498	.0327
-2	-.3635	.0893	.0567	.0412	.0332
0	-.2894	.0864	.0704	.0339	.0335
2	-.2084	.0824	.0801	.0260	.0329
4	-.1065	.0755	.0860	.0157	.0305
6	.0093	.0790	.0957	.0038	.0295
8	.1250	.0859	.0795	-.0099	.0288
10	.2408	.0980	.0659	-.0222	.0294
12	.3542	.1181	.0781	-.0315	.0314
16	.4931	.1642	.0942	-.0428	.0366
20	.6088	.2288	.1126	-.0509	.0430
M = 0.90					
-4	-.4408	.1005	.0417	.0490	.0219
-2	-.3470	.0951	.0565	.0402	.0223
0	-.2706	.0896	.0729	.0327	.0226
2	-.1964	.0837	.0795	.0252	.0217
4	-.0960	.0771	.0881	.0151	.0194
6	.0109	.0793	.0899	.0037	.0184
8	.1309	.0869	.0748	-.0097	.0177
10	.2553	.0989	.0696	-.0224	.0184
12	.3491	.1168	.0722	-.0306	.0203
16	.4975	.1603	.0881	-.0420	.0253
20	.6088	.2238	.0880	-.0514	.0326

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.4106	.1007	.0444	.0471	.0222
-2	-.3297	.0955	.0529	.0387	.0229
0	-.2509	.0888	.0694	.0311	.0226
2	-.1680	.0826	.0790	.0226	.0213
4	-.0830	.0774	.0828	.0131	.0192
6	.0249	.0811	.0812	.0011	.0183
8	.1431	.0862	.0717	-.0110	.0178
10	.2468	.0981	.0634	-.0213	.0182
12	.3505	.1172	.0687	-.0298	.0205
16	.4936	.1600	.0844	-.0405	.0253
20	.6076	.2215	.0796	-.0499	.0323
M = 1.00					
-4	-.3869	.1042	.0425	.0451	.0232
-2	-.3001	.0973	.0543	.0367	.0233
0	-.2251	.0909	.0680	.0289	.0229
2	-.1500	.0860	.0732	.0208	.0220
4	-.0592	.0796	.0797	.0112	.0198
6	.0474	.0845	.0746	.0005	.0188
8	.1520	.0894	.0610	-.0105	.0186
10	.2586	.0988	.0535	-.0206	.0188
12	.3593	.1184	.0511	-.0240	.0211
16	.4955	.1622	.0644	-.0308	.0266
20	.6120	.2192	.0648	-.0385	.0333
M = 1.05					
-4	-.3765	.1160	.0452	.0466	.0255
-2	-.2966	.1037	.0579	.0404	.0255
0	-.2111	.0970	.0717	.0331	.0251
2	-.1369	.0914	.0752	.0244	.0236
4	-.0418	.0871	.0807	.0130	.0216
6	.0608	.0895	.0764	.0029	.0208
8	.1597	.0970	.0593	-.0081	.0208
10	.2586	.1065	.0422	-.0182	.0212
12	.3594	.1193	.0238	-.0239	.0225
16	.5210	.1609	.0212	-.0303	.0280
20	.6351	.2201	.0310	-.0370	.0345
M = 1.10					
-4	-.3593	.0872	.0476	.0504	.0257
-2	-.2768	.1027	.0591	.0422	.0260
0	-.2035	.0958	.0666	.0339	.0254
2	-.1265	.0904	.0701	.0240	.0238
4	-.0385	.0867	.0736	.0146	.0220
6	.0532	.0894	.0684	.0049	.0211
8	.1448	.0958	.0509	-.0082	.0208
10	.2548	.1050	.0383	-.0176	.0214
12	.3373	.0922	.0148	-.0184	.0221
16	.5023	.1552	.0047	-.0188	.0277
20	.6398	.2140	-.0008	-.0284	.0352

TABLE VIII.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 1 - Continued

(c) Half-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 0.50$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.3908	.0676	.0421	.0452	.0069
-2	-.3184	.0540	.0437	.0344	.0058
0	-.2189	.0495	.0319	.0220	.0056
2	-.1375	.0495	.0291	.0115	.0055
4	-.0380	.0495	.0191	.0000	.0055
6	.0615	.0558	.0150	-.0124	.0048
8	.1610	.0721	.0090	-.0251	.0063
10	.2967	.0946	.0073	-.0400	.0098
12	.4179	.1234	.0104	-.0508	.0145
16	.5735	.1846	.0554	-.0617	.0236
20	.6766	.2612	.0814	-.0688	.0294
M = 0.80					
-4	-.4192	.0673	.0490	.0444	.0062
-2	-.3208	.0581	.0405	.0335	.0056
0	-.2286	.0551	.0286	.0223	.0057
2	-.1426	.0520	.0221	.0122	.0057
4	-.0504	.0520	.0146	.0013	.0055
6	.0504	.0551	.0071	-.0112	.0052
8	.1647	.0673	.0028	-.0240	.0065
10	.2938	.0857	.0049	-.0385	.0100
12	.3983	.1120	.0132	-.0482	.0140
16	.5519	.1683	.0513	-.0598	.0211
20	.6491	.2356	.0730	-.0657	.0279
M = 0.85					
-4	-.4157	.0715	.0458	.0452	.0060
-2	-.3238	.0629	.0414	.0334	.0056
0	-.2205	.0572	.0217	.0218	.0056
2	-.1401	.0532	.0158	.0120	.0056
4	-.0482	.0515	.0100	.0012	.0055
6	.0482	.0560	.0018	-.0106	.0050
8	.1585	.0669	.0052	-.0234	.0063
10	.2963	.0858	.0098	-.0381	.0101
12	.3996	.1115	.0184	-.0482	.0140
16	.6752	.1675	.1096	-.0608	.0211
20	.6476	.2333	.0676	-.0661	.0280
M = 0.90					
-4	-.4026	.0744	.0410	.0437	.0056
-2	-.3161	.0663	.0392	.0326	.0054
0	-.2186	.0593	.0219	.0215	.0056
2	-.1429	.0555	.0164	.0122	.0055
4	-.0455	.0539	.0053	.0011	.0053
6	.0628	.0566	.0056	-.0113	.0049
8	.1710	.0674	.0120	-.0235	.0067
10	.3009	.0862	.0165	-.0378	.0102
12	.3983	.1094	.0151	-.0480	.0140
16	.5499	.1617	.0452	-.0602	.0212
20	.6689	.2306	.0676	-.0684	.0290

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.3928	.0758	-.0391	.0424	.0059
-2	-.3003	.0666	-.0299	.0319	.0057
0	-.2077	.0614	-.0135	.0213	.0057
2	-.1357	.0589	-.0102	.0122	.0059
6	.0699	.0563	.0120	-.0113	.0051
8	.1727	.0666	.0167	-.0236	.0068
10	.2961	.0834	.0208	-.0368	.0098
12	.3990	.1075	.0190	-.0474	.0140
16	.5532	.1602	.0455	-.0597	.0209
20	.6807	.2278	.0575	-.0703	.0289
M = 1.00					
-4	-.3779	.0804	-.0199	.0421	.0072
-2	-.2917	.0707	-.0141	.0317	.0070
0	-.1977	.0634	.0011	.0211	.0065
2	-.1194	.0634	.0009	.0111	.0070
4	-.0215	.0560	.0087	-.0005	.0056
6	.0764	.0585	.0201	-.0116	.0056
8	.1938	.0707	.0239	-.0250	.0070
10	.2917	.0853	.0182	-.0367	.0095
12	.3994	.1072	.0106	-.0493	.0137
16	.5756	.1608	.0189	-.0652	.0217
20	.6833	.2291	.0420	-.0719	.0293
M = 1.05					
-4	-.3600	.0788	-.0119	.0405	.0078
-2	-.2696	.0704	-.0046	.0300	.0078
0	-.1810	.0634	.0004	.0187	.0076
2	-.0999	.0610	.0050	.0092	.0068
4	-.0057	.0587	.0026	-.0015	.0065
6	.0829	.0610	.0074	-.0132	.0065
8	.1866	.0718	.0098	-.0255	.0077
10	.2903	.0868	.0023	-.0384	.0100
12	.3940	.1070	-.0030	-.0494	.0136
16	.5636	.1586	-.3269	-.1353	.0226
20	.7050	.2252	-.0007	-.0788	.0313
M = 1.10					
-4	-.3380	.0737	-.0069	.0391	.0078
-2	-.2563	.0679	-.0040	.0289	.0074
0	-.1745	.0611	.0004	.0181	.0080
2	-.0927	.0588	.0054	.0087	.0069
4	-.0018	.0579	.0089	-.0020	.0066
6	.0709	.0588	.0045	-.0123	.0065
8	.1799	.0692	.0095	-.0249	.0077
10	.2799	.0828	.0041	-.0364	.0096
12	.3889	.1041	.0029	-.0479	.0129
16	.5434	.1516	-.0199	-.0655	.0214
20	.6797	.2172	.1682	-.0394	.0307

TABLE VIII.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 1 - Continued

(d) Half-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 0.75$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.4187	.0852	.0511	.0441	.0080
-2	-.3186	.0761	.0520	.0320	.0073
0	-.2185	.0716	.0423	.0203	.0073
2	-.1001	.0716	.0137	.0103	.0075
4	-.0510	.0716	.0269	.0003	.0068
6	.0455	.0761	.0123	-.0118	.0065
8	.1420	.0897	.0018	-.0229	.0082
10	.2622	.1124	.0036	-.0206	.0115
12	.3641	.1396	.0117	-.0458	.0158
16	.4916	.1940	.0757	-.0525	.0223
20	.6099	.2665	.0894	-.0619	.0299
M = 0.80					
-4	-.4082	.0887	.0467	.0435	.0080
-2	-.3031	.0764	.0458	.0305	.0071
0	-.2103	.0733	.0336	.0194	.0072
2	-.1299	.0721	.0230	.0106	.0072
4	-.0458	.0702	.0173	.0003	.0073
6	.0495	.0733	.0069	-.0113	.0069
8	.1546	.0838	.0059	-.0232	.0084
10	.2660	.0998	.0102	-.0357	.0113
12	.3649	.1244	.0221	-.0444	.0209
16	.4701	.1718	.0760	-.0500	.0212
20	.5938	.2396	.0831	-.0597	.0292
M = 0.85					
-4	-.3985	.0886	.0450	.0429	.0078
-2	-.3003	.0799	.0442	.0307	.0073
0	-.2195	.0771	.0338	.0208	.0074
2	-.1386	.0730	.0226	.0113	.0074
4	-.0578	.0713	.0165	.0010	.0073
6	.0462	.0713	.0022	-.0113	.0072
8	.1502	.0828	.0074	-.0231	.0083
10	.2715	.1001	.0120	-.0360	.0117
12	.3639	.0943	.0186	-.0443	.0154
16	.4736	.1691	.0751	-.0504	.0213
20	.5891	.2381	.0797	-.0597	.0291
M = 0.90					
-4	-.3879	.0917	.0433	.0418	.0077
-2	-.3029	.0835	.0383	.0312	.0076
0	-.2114	.0781	.0239	.0209	.0075
2	-.1308	.0754	.0158	.0106	.0074
4	-.0436	.0700	.0076	.0000	.0074
6	.0436	.0727	.0002	-.0110	.0073
8	.1743	.0808	.0195	-.0241	.0086
10	.2724	.0982	.0158	-.0358	.0117
12	.3705	.1188	.0199	-.0455	.0158
16	.4903	.1676	.0735	-.0424	.0218
20	.5928	.2300	.0843	-.0597	.0289

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.3727	.0938	-.0361	.0406	.0081
-2	-.2857	.0845	-.0281	.0298	.0080
0	-.1967	.0794	-.0155	.0197	.0079
2	-.1139	.0758	-.0060	.0098	.0079
4	-.0311	.0716	-.0004	-.0005	.0076
6	.0621	.0732	.0104	-.0110	.0075
8	.1760	.0819	.0204	-.0239	.0087
10	.2691	.0964	.0188	-.0349	.0116
12	.3727	.1206	.0188	-.0456	.0158
16	.4865	.1670	.0697	-.0512	.0217
20	.6045	.2288	.0768	-.0624	.0294
M = 1.00					
-4	-.3449	.1001	-.0228	.0385	.0094
-2	-.2661	.0903	-.0170	.0284	.0089
0	-.1715	.0829	-.0013	.0174	.0086
2	-.1025	.0795	.0044	.0089	.0085
4	-.0197	.0780	.0118	-.0012	.0085
6	.0690	.0770	.0221	-.0116	.0083
8	.1675	.0854	.0269	-.0238	.0095
10	.2661	.0991	.0319	-.0338	.0121
12	.3548	.1197	.0289	-.0434	.0157
16	.4829	.1663	.0557	-.0532	.0222
20	.6208	.2301	.0614	-.0658	.0305
M = 1.05					
-4	-.3321	.0964	-.0198	.0372	.0094
-2	-.2600	.0883	-.0149	.0273	.0094
0	-.1708	.0822	.0007	.0175	.0093
2	-.0949	.0789	.0062	.0086	.0090
4	-.0190	.0775	.0081	-.0013	.0087
6	.0759	.0789	.0161	-.0122	.0087
8	.1613	.0883	.0162	-.0239	.0097
10	.2562	.1025	.0144	-.0351	.0120
12	.3605	.1224	.0174	-.0458	.0156
16	.4991	.1720	.0141	-.0596	.0235
20	.6452	.2334	.0135	-.0718	.0322
M = 1.10					
-4	-.3385	.0929	-.0276	.0368	.0092
-2	-.2470	.0838	-.0157	.0271	.0094
0	-.1683	.0792	-.0044	.0166	.0095
2	-.0915	.0770	.0027	.0094	.0089
4	-.0183	.0747	.0065	-.0014	.0086
6	.0823	.0770	.0168	-.0128	.0091
8	.1647	.0838	.0168	-.0238	.0097
10	.2653	.0988	.0197	-.0342	.0116
12	.3476	.1180	.0136	-.0442	.0150
16	.4757	.1658	.0076	-.0580	.0221
20	.6221	.2268	-.0063	-.0724	.0316

TABLE VIII.- AERODYNAMIC CHARACTERISTICS OF AN ASPECT-RATIO-4 WING WITH SWEEP OF 45° AND TAPER RATIO OF 1 - Concluded

(e) Half-span spoiler slot deflector; $\delta_s = -0.075$; $\delta_d/\delta_s = 1.00$

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.60					
-4	-.3725	.0859	.0531	.0392	.0078
-2	-.2853	.0796	.0453	.0288	.0073
0	-.1999	.0769	.0396	.0180	.0073
2	-.1272	.0769	.0336	.0093	.0075
4	-.0418	.0769	.0253	-.0012	.0075
6	.0545	.0796	.0180	-.0124	.0071
8	.1544	.0932	.0085	-.0241	.0085
10	.2725	.1131	.0125	-.0383	.0121
12	.3816	.1402	.0007	-.0475	.0166
16	.4815	.1945	.0595	-.0517	.0224
20	.5542	.2533	.0823	-.0573	.0291
M = 0.80					
-4	-.3459	.0892	.0503	.0362	.0077
-2	-.2656	.0830	.0441	.0267	.0073
0	-.1816	.0800	.0316	.0167	.0074
2	-.1112	.0787	.0259	.0079	.0078
4	-.0247	.0757	.0154	-.0022	.0077
6	.0741	.0769	.0024	-.0133	.0073
8	.1791	.0892	.0017	-.0256	.0091
10	.2965	.1095	.0017	-.0387	.0126
12	.3892	.1322	.0094	-.0463	.0169
16	.4756	.1784	.0629	-.0506	.0225
20	.5436	.2337	.0738	-.0559	.0290
M = 0.85					
-4	-.3344	.0890	.0553	.0352	.0077
-2	-.2595	.0833	.0454	.0259	.0075
0	-.1730	.0815	.0337	.0158	.0076
2	-.1038	.0792	.0282	.0071	.0077
4	-.0196	.0775	.0178	-.0028	.0078
6	.0692	.0792	.0092	-.0132	.0075
8	.1730	.0890	.0037	-.0253	.0092
10	.2998	.1062	.0023	-.0385	.0126
12	.3921	.1309	.0068	-.0470	.0168
16	.4844	.1780	.0588	-.0514	.0225
20	.5478	.2325	.0738	-.0561	.0292
M = 0.90					
-4	-.3261	.0920	.0540	.0348	.0077
-2	-.2446	.0866	.0430	.0251	.0078
0	-.1652	.0823	.0337	.0149	.0079
2	-.0870	.0785	.0273	.0039	.0080
4	-.0022	.0758	.0147	-.0037	.0079
6	.0815	.0785	.0097	-.0145	.0079
8	.1794	.0893	.0005	-.0257	.0094
10	.2989	.1055	.0052	-.0385	.0129
12	.4022	.1299	.0051	-.0478	.0172
16	.4946	.1732	.0511	-.0521	.0227
20	.5544	.2300	.0660	-.0573	.0295

α, deg	C_L	C_D	C_m	C_l	C_n
M = 0.95					
-4	-.3203	.0952	-.0531	.0340	.0082
-2	-.2417	.0900	-.0456	.0244	.0084
0	-.1550	.0849	-.0339	.0142	.0085
2	-.0868	.0823	-.0242	.0057	.0086
4	-.0103	.0797	-.0179	-.0032	.0086
6	.0930	.0823	-.0018	-.0149	.0083
8	.1756	.0900	.0039	-.0248	.0095
10	.2851	.1054	.0012	-.0368	.0127
12	.3884	.1286	-.0020	-.0474	.0172
16	.4897	.1764	.0448	-.0527	.0230
20	.5579	.2315	.0633	-.0582	.0299
M = 1.00					
-4	-.3147	.1028	-.0362	.0332	.0096
-2	-.2360	.0955	-.0289	.0236	.0094
0	-.1475	.0906	-.0162	.0136	.0094
2	-.0787	.0857	-.0105	.0054	.0091
4	.0000	.0832	-.0048	-.0039	.0089
6	.0787	.0881	.0009	-.0141	.0093
8	.1869	.0955	.0106	-.0254	.0102
10	.2655	.1077	-.0012	-.0359	.0128
12	.3737	.1273	-.0015	-.0468	.0169
16	.4917	.1787	.0319	-.0551	.0235
20	.5704	.2326	.0576	-.0603	.0301
M = 1.05					
-4	-.3125	.1014	-.0349	.0332	.0098
-2	-.2273	.0943	-.0280	.0227	.0096
0	-.1420	.0896	-.0175	.0131	.0093
2	-.0758	.0872	-.0141	.0044	.0093
4	.0000	.0858	-.0065	-.0045	.0093
6	.0814	.0872	-.0029	-.0143	.0094
8	.1799	.0981	.0005	-.0263	.0106
10	.2746	.1108	-.0014	-.0373	.0127
12	.3598	.1296	-.0109	-.0470	.0119
16	.4829	.1759	-.0014	-.0584	.0241
20	.5871	.2338	.0039	-.0686	.0319
M = 1.10					
-4	-.2921	.0955	-.0290	.0322	.0096
-2	-.2191	.0909	-.0282	.0222	.0096
0	-.1369	.0864	-.0170	.0133	.0096
2	-.0730	.0864	-.0128	.0044	.0094
4	.0000	.0818	-.0075	-.0047	.0094
6	.0913	.0864	.0036	-.0145	.0093
8	.1826	.0936	.0049	-.0260	.0104
10	.2648	.1045	-.0014	-.0356	.0125
12	.3469	.1273	-.0115	-.0458	.0158
16	.4656	.1718	-.0076	-.0574	.0229
20	.5752	.2318	-.0072	-.0679	.0312

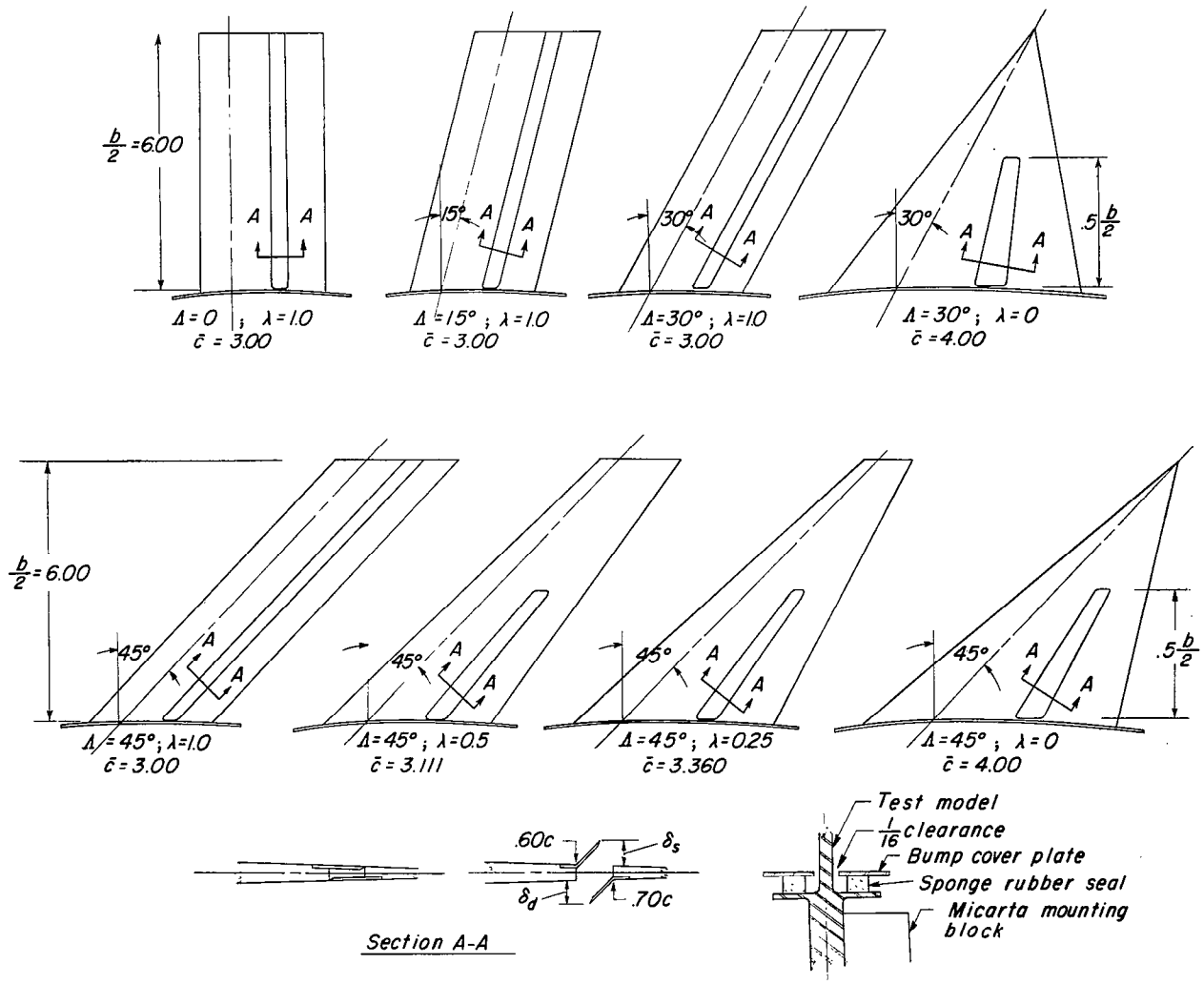


Figure 1.- Geometric characteristics of models used in investigation. All dimensions are in inches unless otherwise noted.

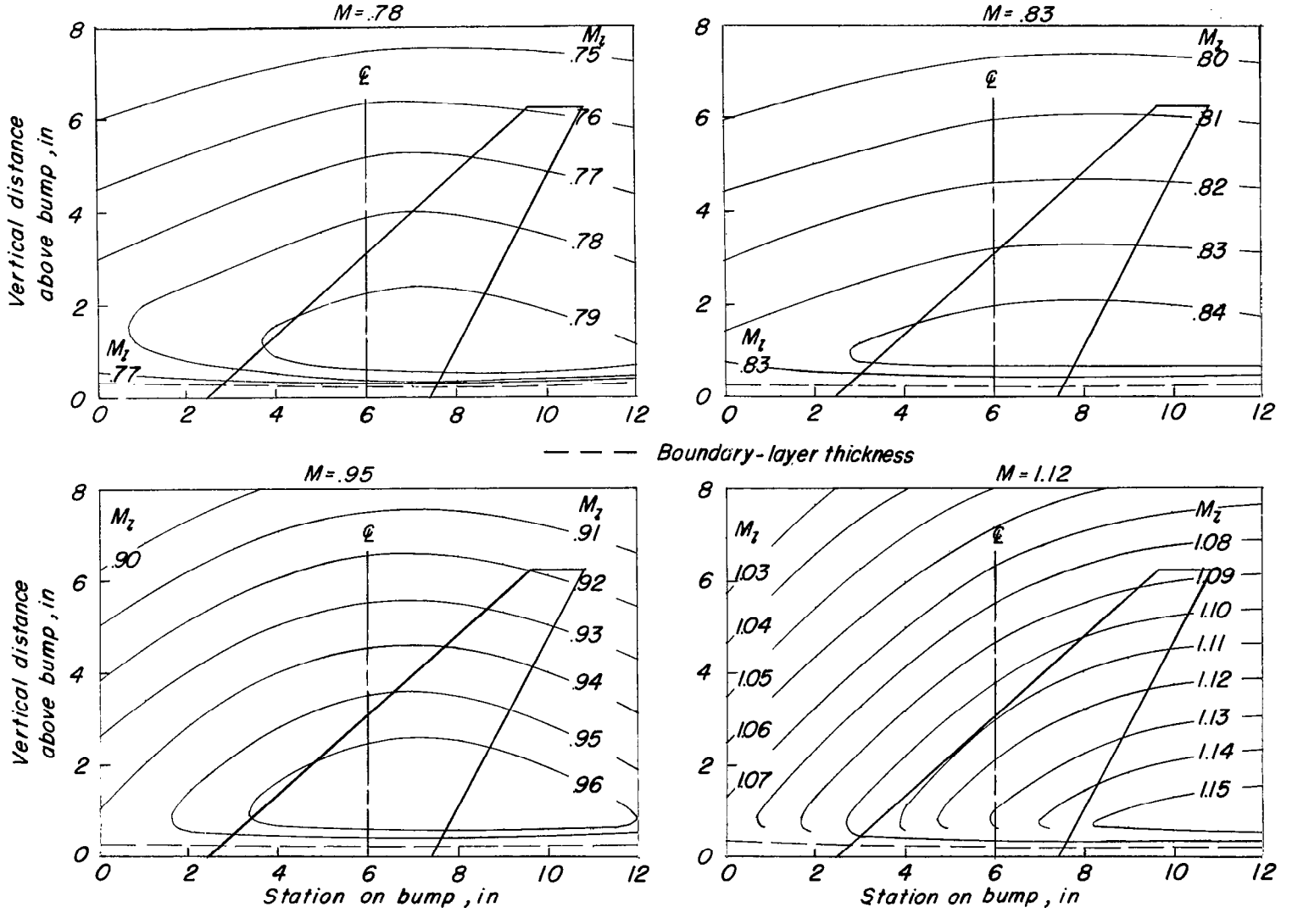


Figure 2.- Typical Mach number contours over transonic bump in region of model location.

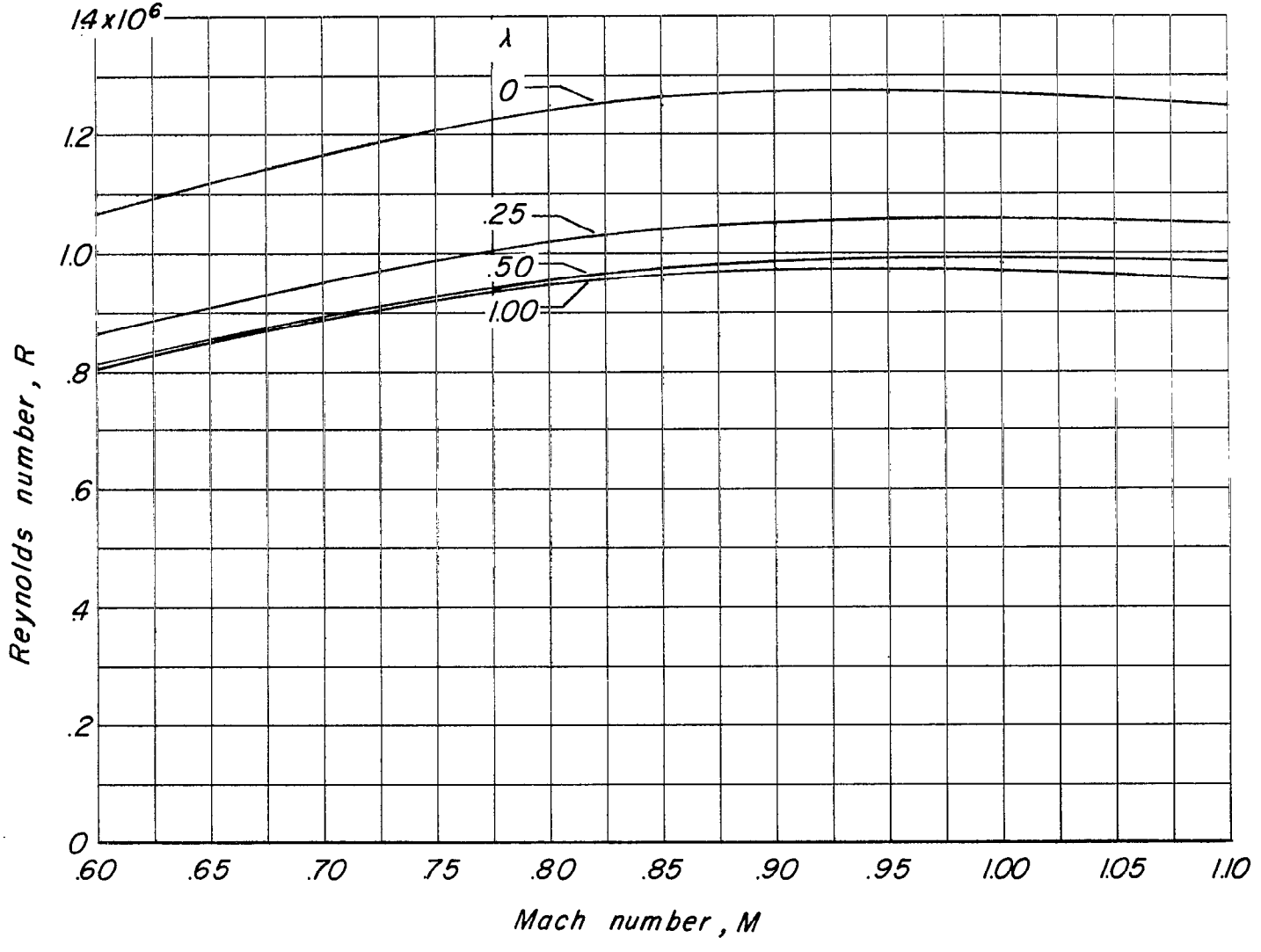
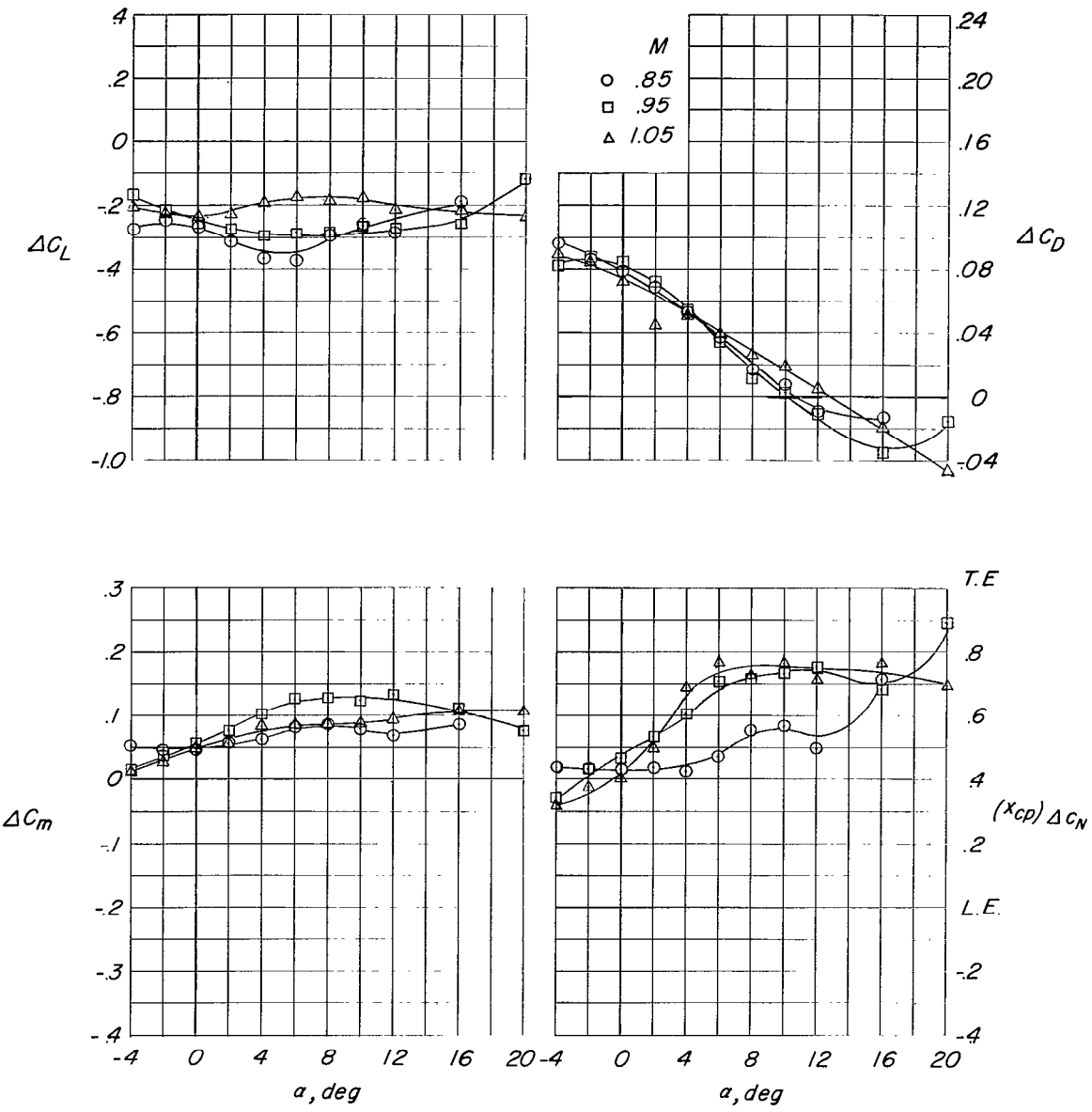


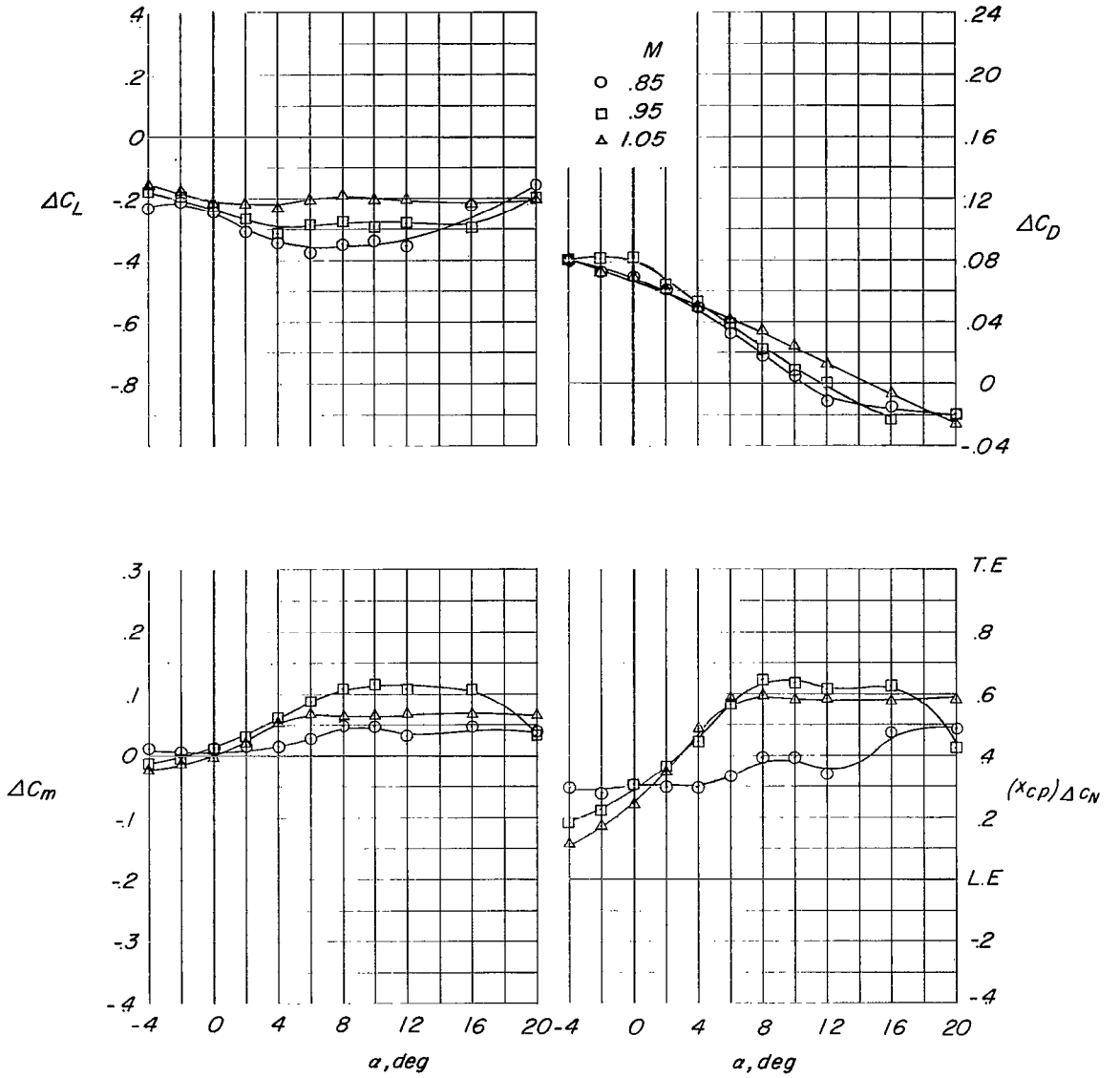
Figure 3.- Variation of test Reynolds number with Mach number, for various wing taper ratios.



(a) $\Lambda_{c/4} = 0^{\circ}$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

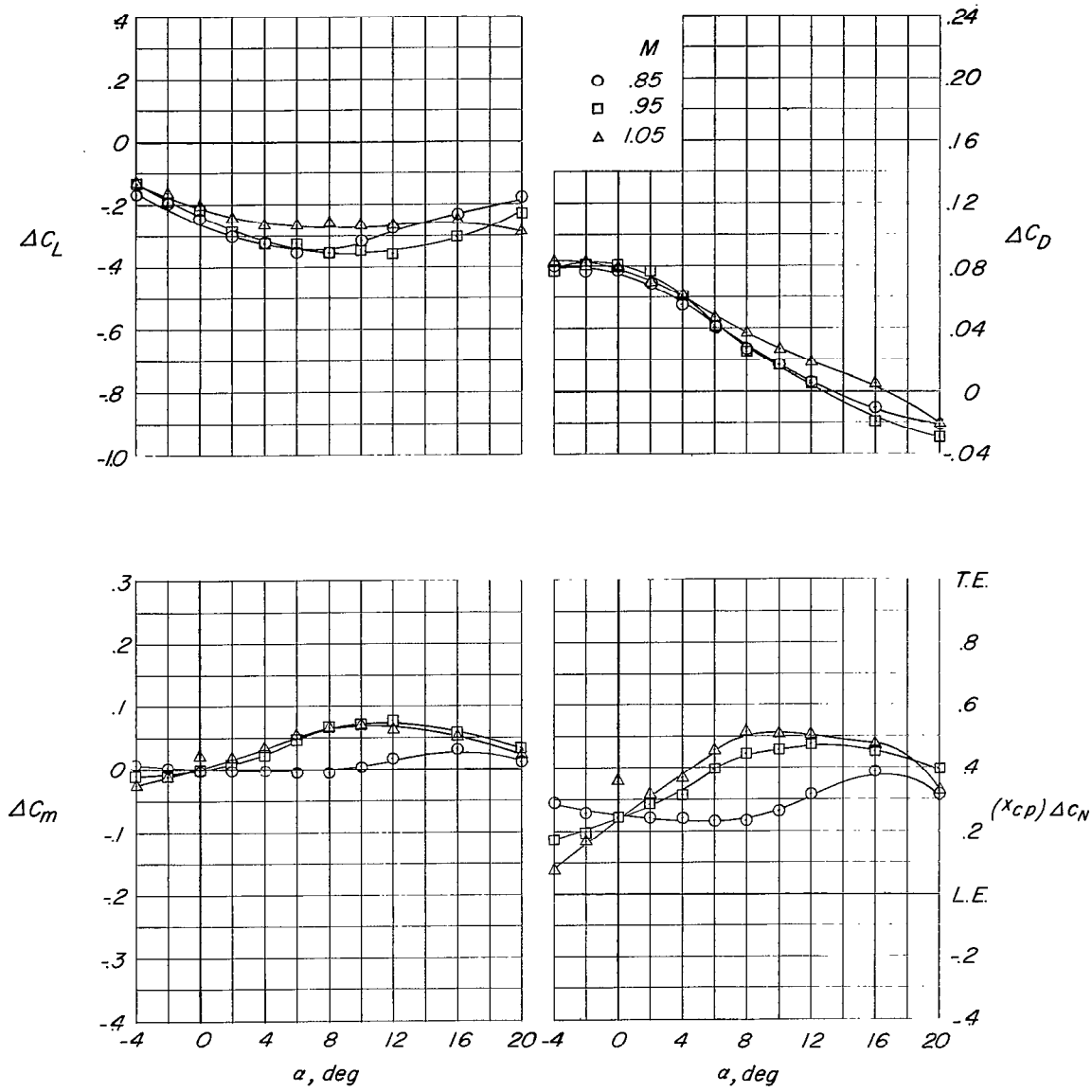
Figure 4.- The effect of Mach number on the variation of the incremental lift, drag, and pitching-moment coefficients, and center of pressure with angle of attack for the spoiler-slot-deflector configuration on wings having sweeps of 0°, 15°, 30°, and 45°.

[redacted]



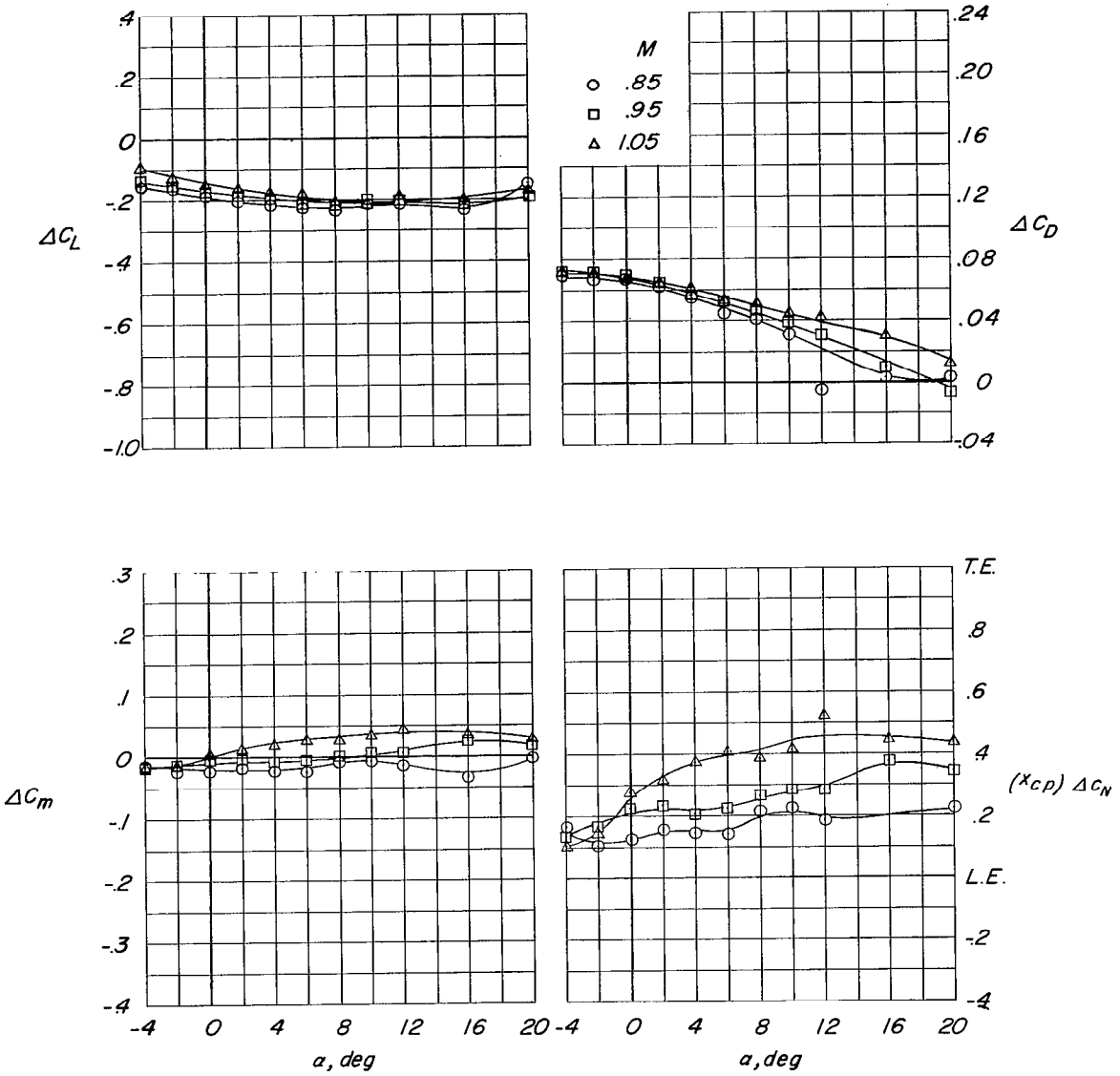
(b) $\Lambda_{c/4} = 15^{\circ}$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_a}{\delta_s} = 0.75$.

Figure 4.- Continued.



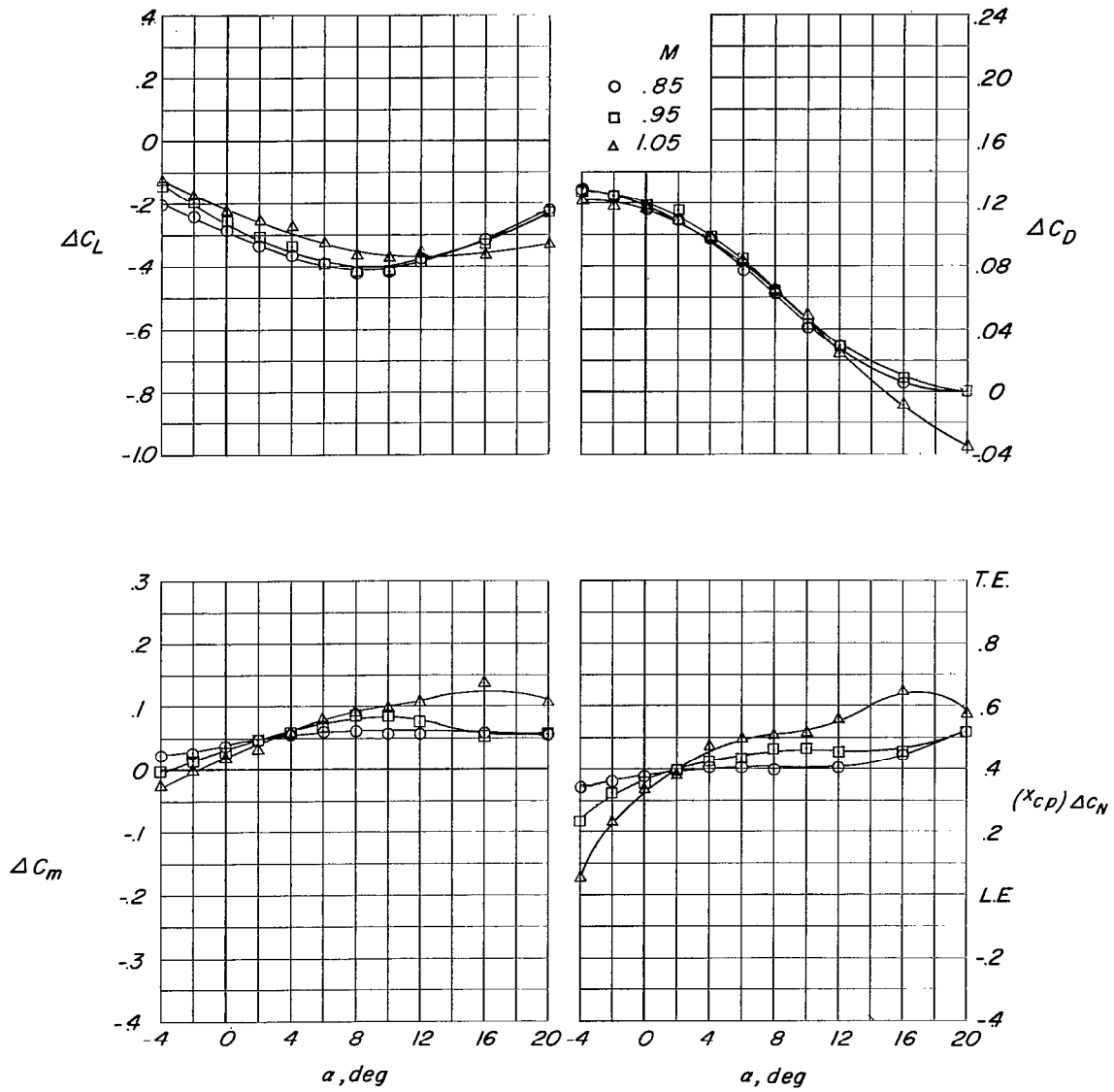
(c) $\Lambda_{c/4} = 30^\circ$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 4.- Continued.



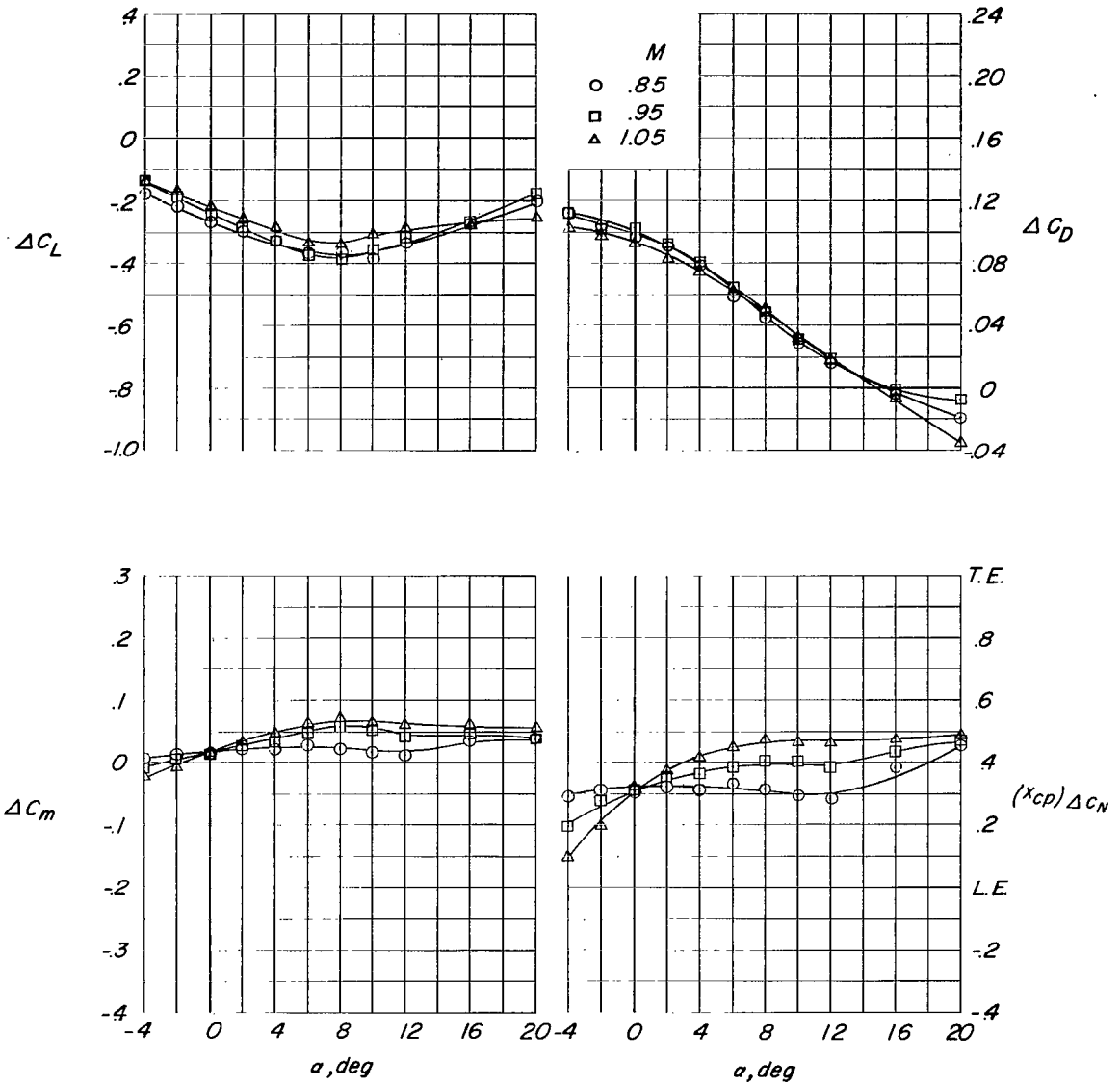
(d) $\Lambda_{c/4} = 45°$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 4.- Concluded.



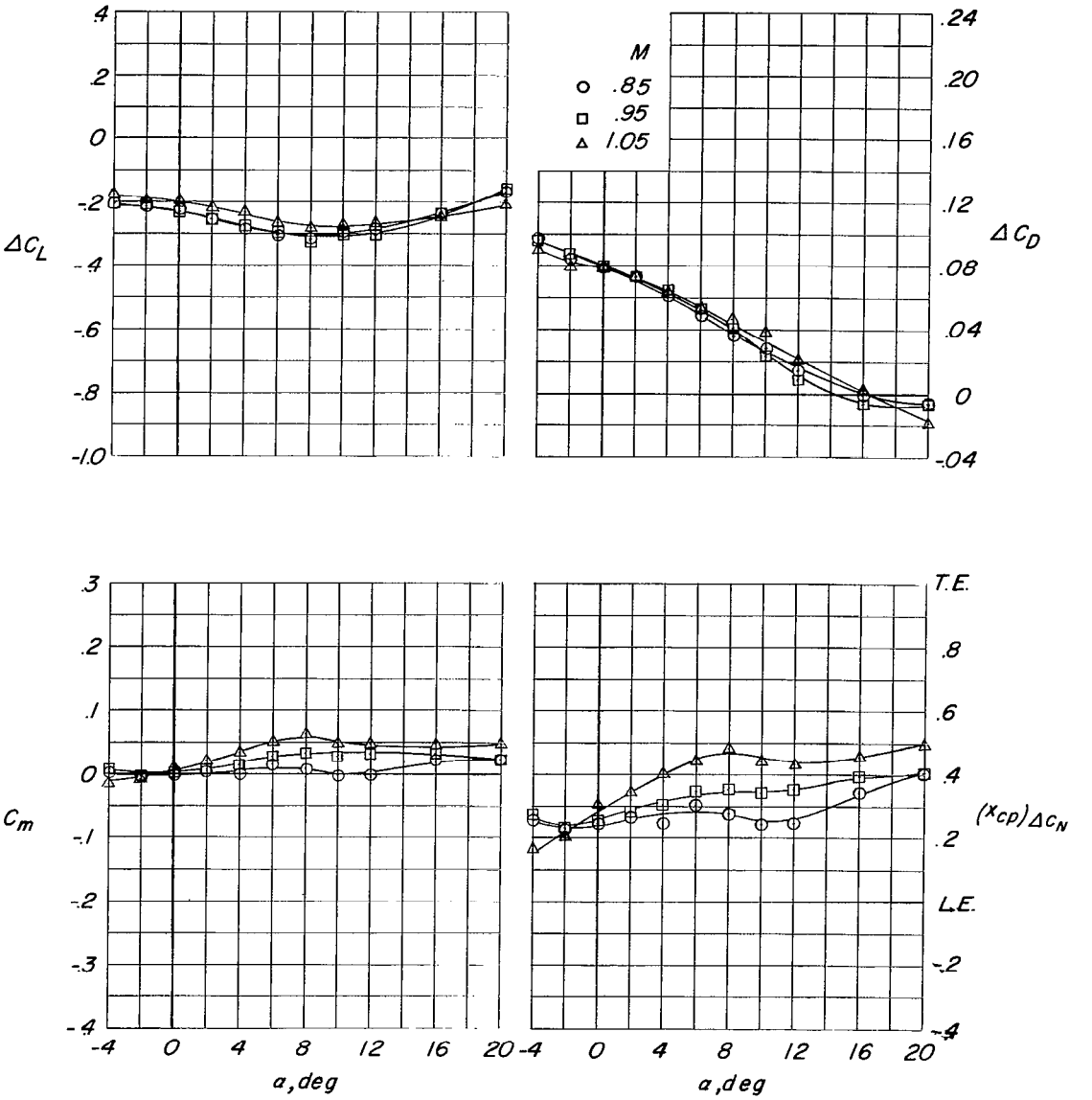
(a) $\lambda = 0$; $\Lambda_{c/4} = 45^\circ$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 5.- The effect of Mach number on the variation of the incremental lift, drag, and pitching-moment coefficients, and center of pressure with angle of attack for the spoiler-slot-deflector configuration on the 45° swept wings having taper ratios of 0, 0.25, 0.50, and 1.00.



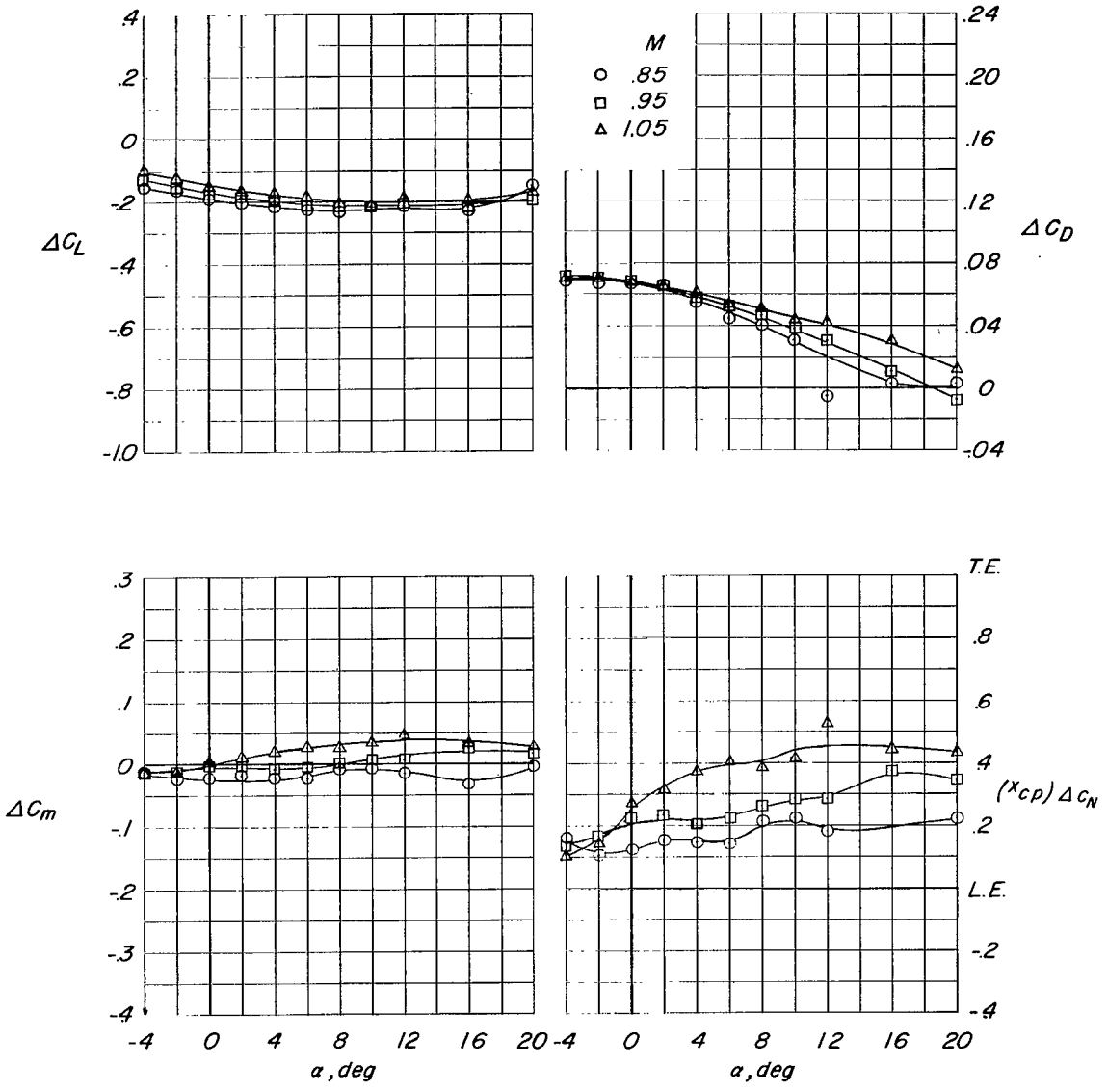
(b) $\lambda = 0.25$; $\Lambda_{c/4} = 45^{\circ}$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 5.- Continued.



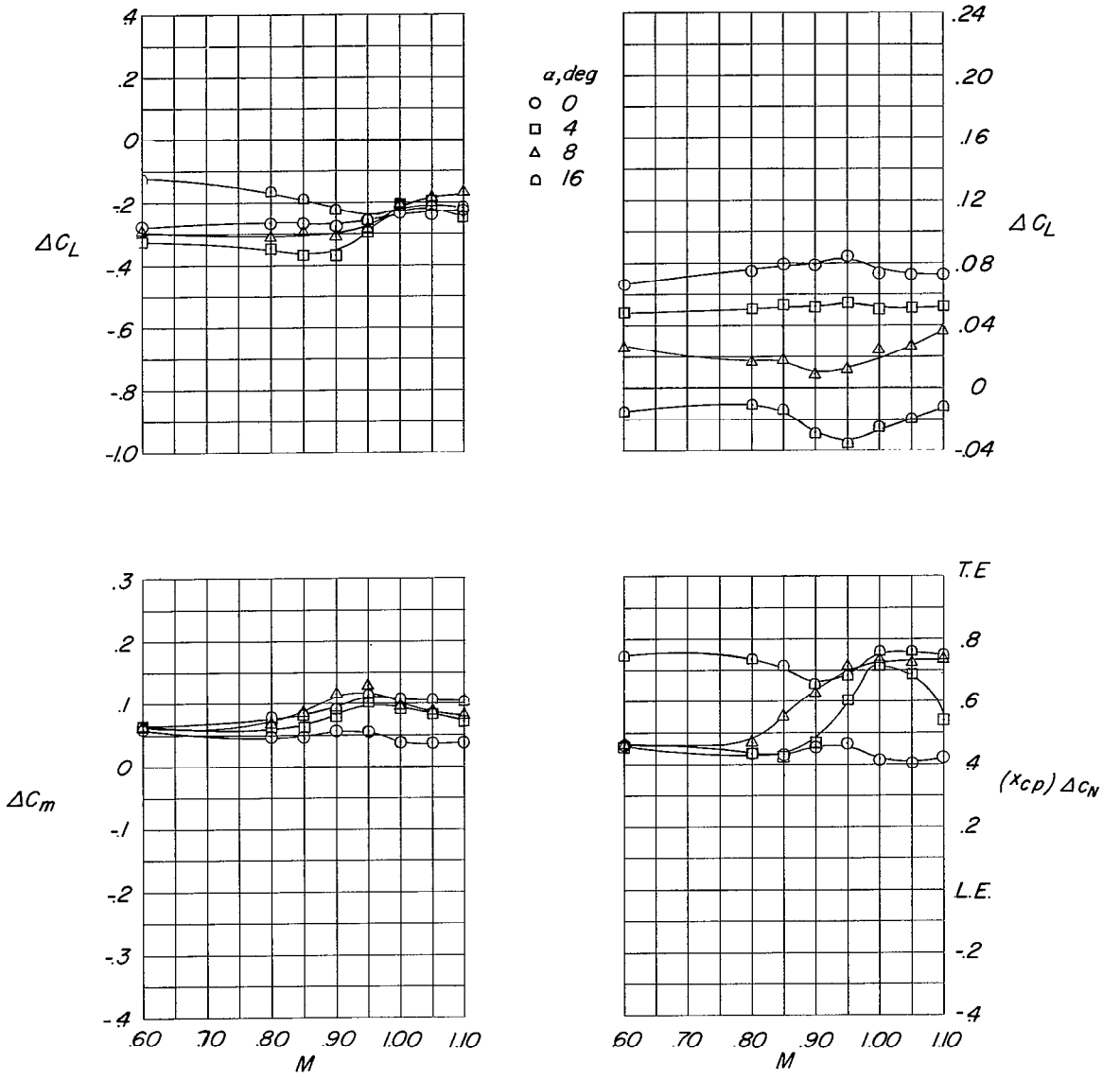
(c) $\lambda = 0.50$; $\Lambda_{c/4} = 45^{\circ}$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 5.- Continued.



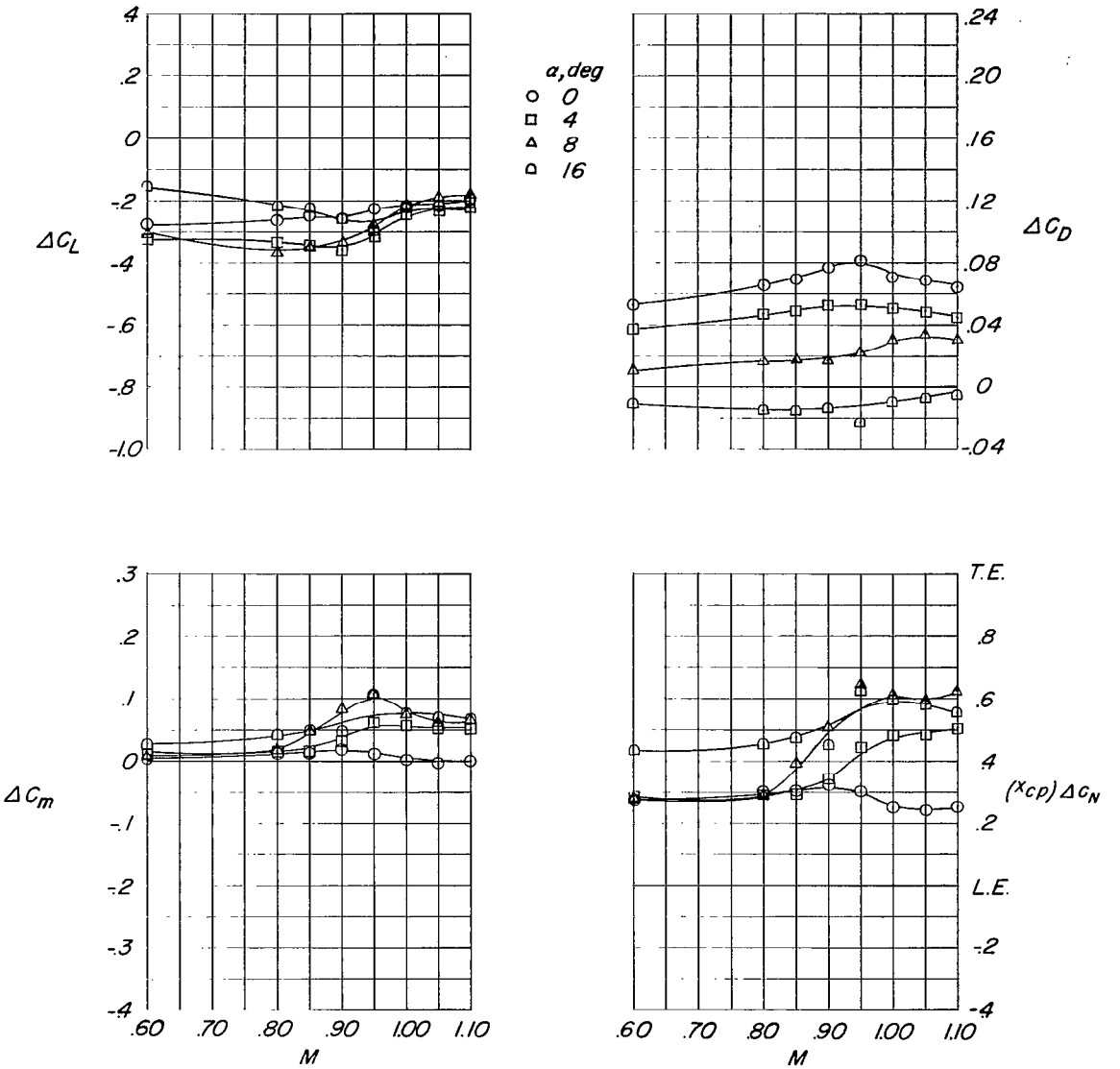
(d) $\lambda = 1.00$; $\Lambda_{c/4} = 45^{\circ}$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 5.- Concluded.



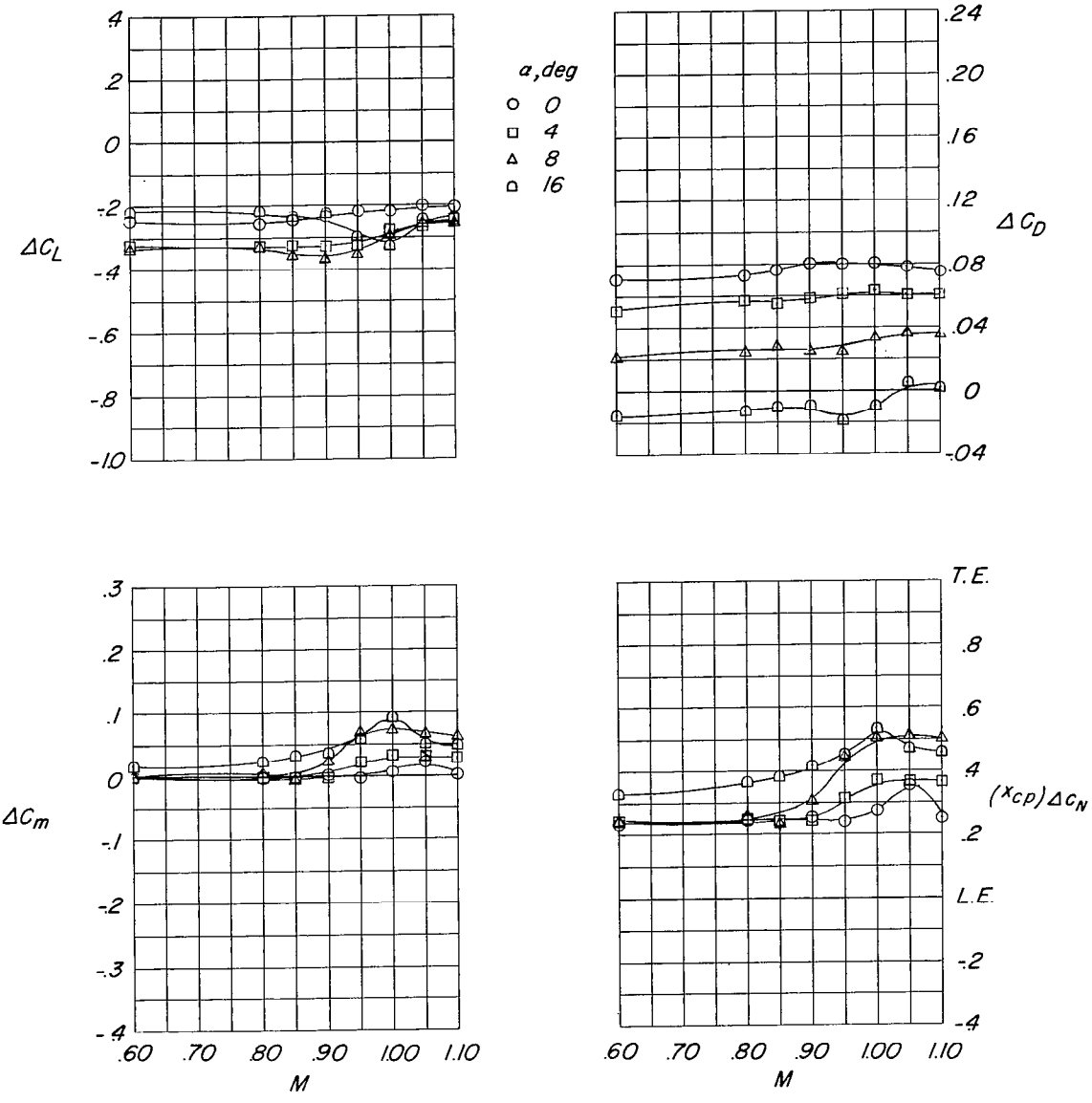
(a) $\Lambda_c/4 = 0^\circ$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 6.- The effect of angle of attack on the variation of the incremental lift, drag, and pitching-moment coefficients, and center of pressure with Mach number for the spoiler-slot-deflector configuration on wings having sweeps of 0°, 15°, 30°, and 45°.



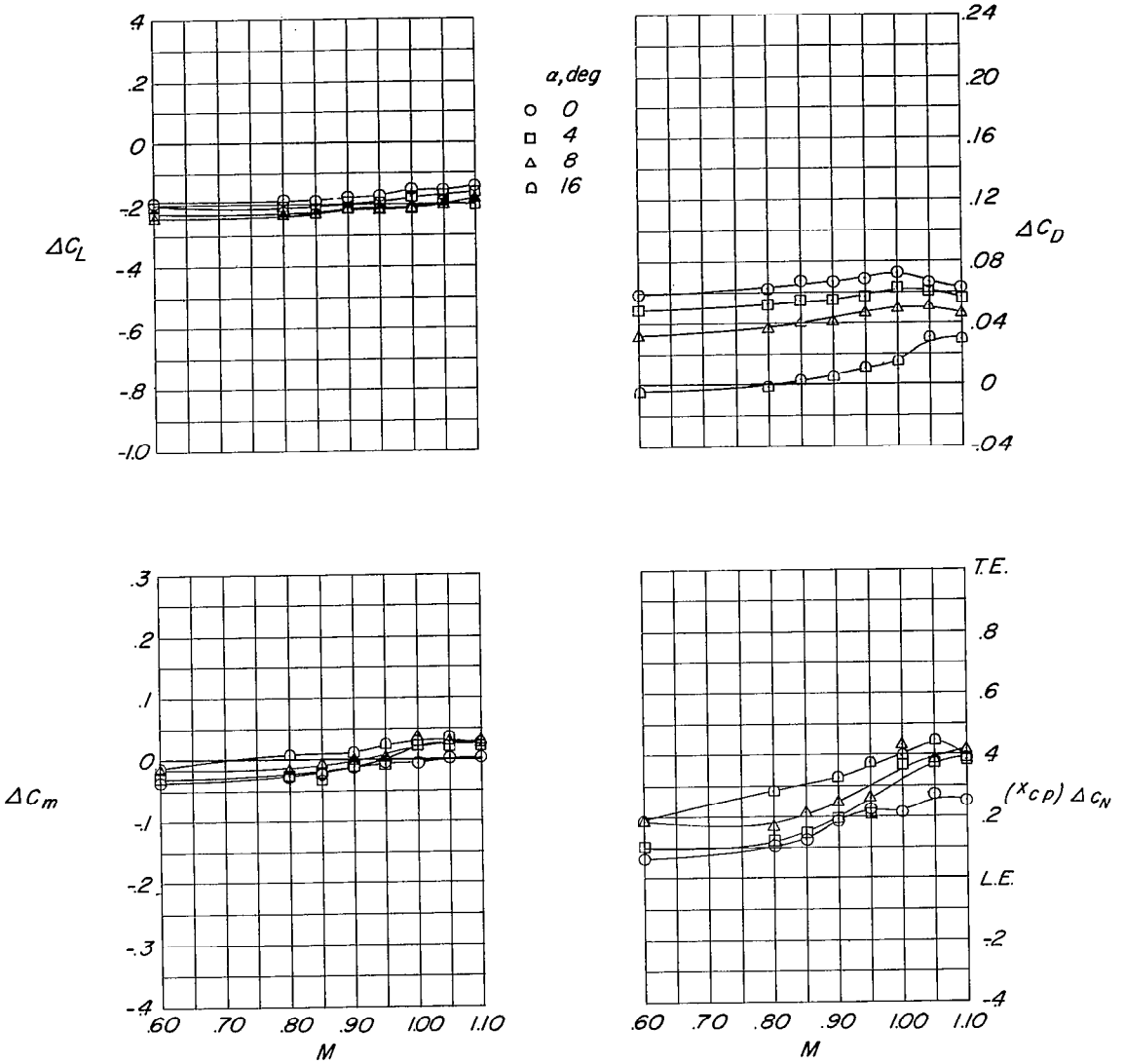
(b) $\Lambda_{c/4} = 15°$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 6.- Continued.



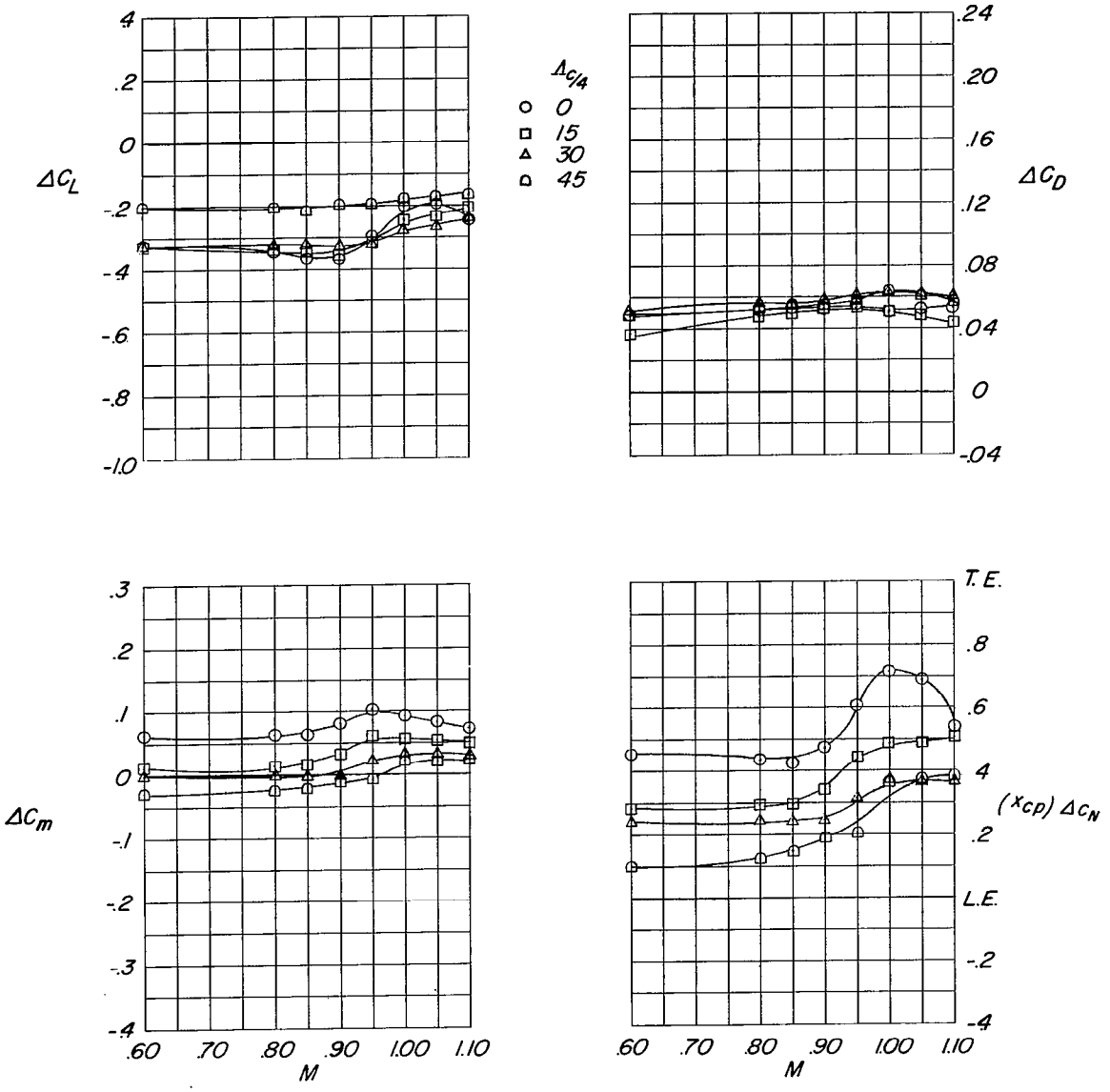
(c) $\Lambda_{c/4} = 30^{\circ}$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 6.- Continued.



(d) $\Lambda_{c/4} = 45^{\circ}$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

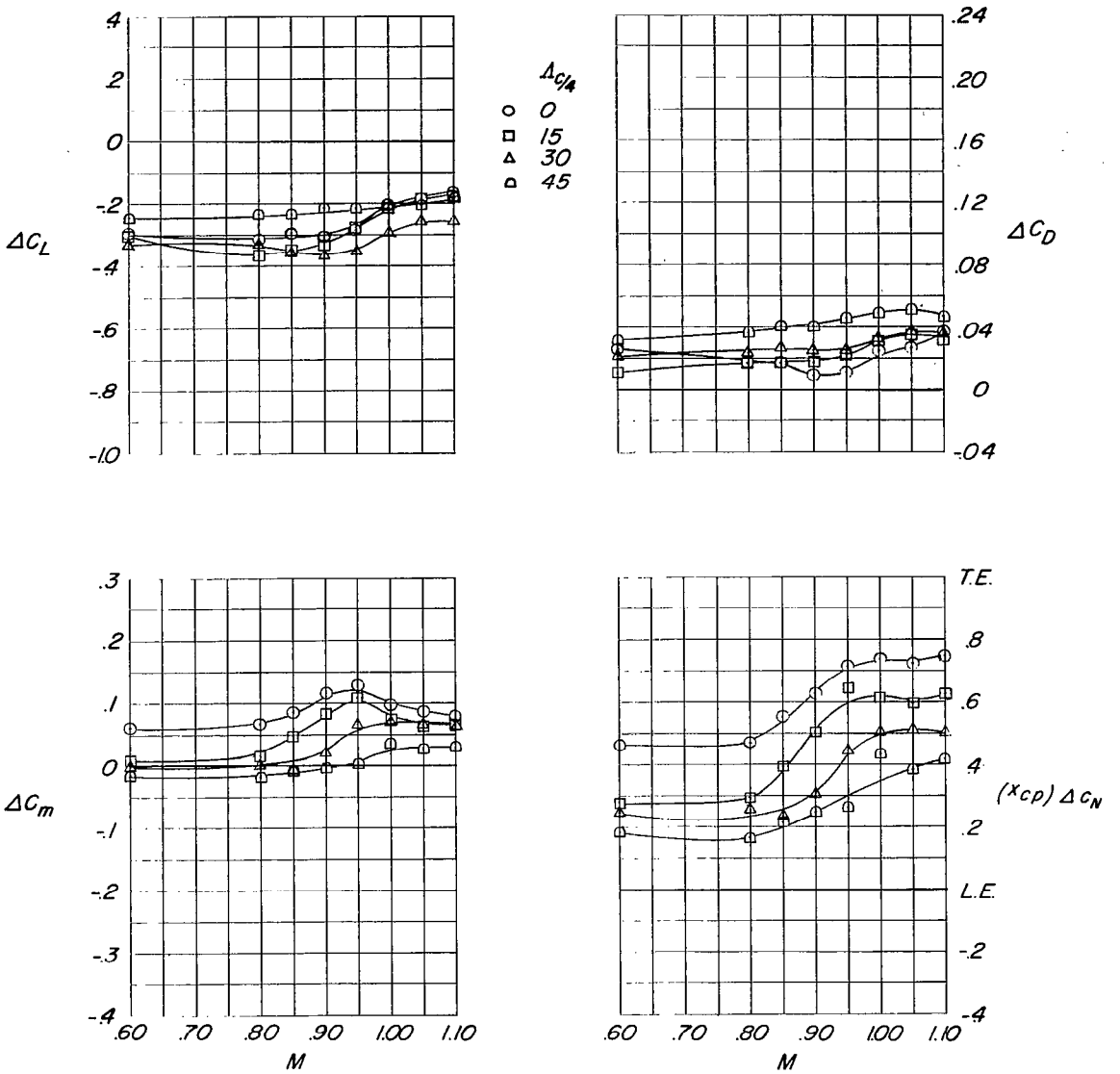
Figure 6.- Concluded.



(a) $\alpha = 4^{\circ}$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

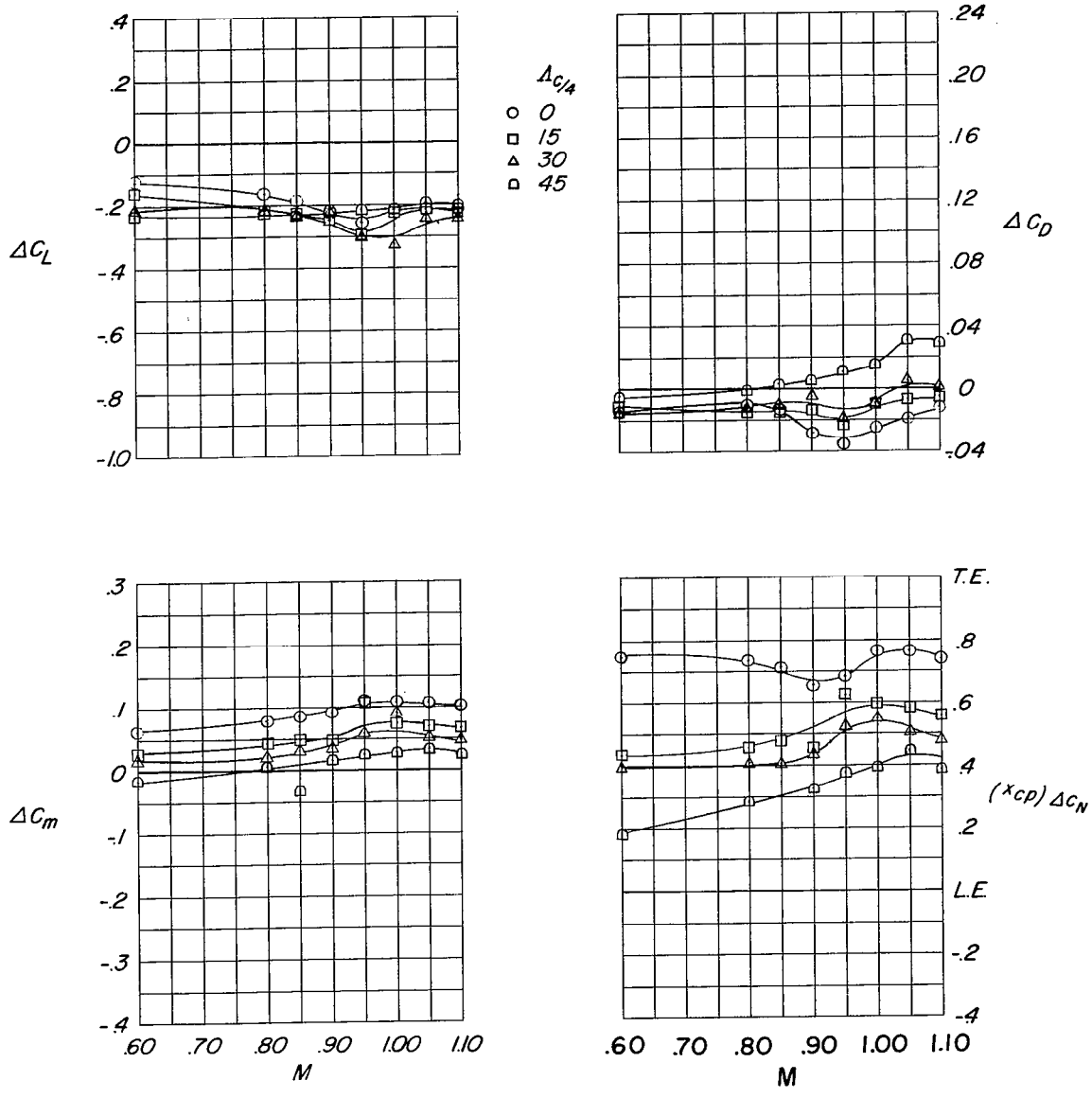
Figure 7.- The effect of wing sweep on the variation of the incremental lift, drag, and pitching-moment coefficients, and center of pressure with Mach number for the spoiler-slot-deflector configuration at several angles of attack.

[redacted]



(b) $\alpha = 8^\circ$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

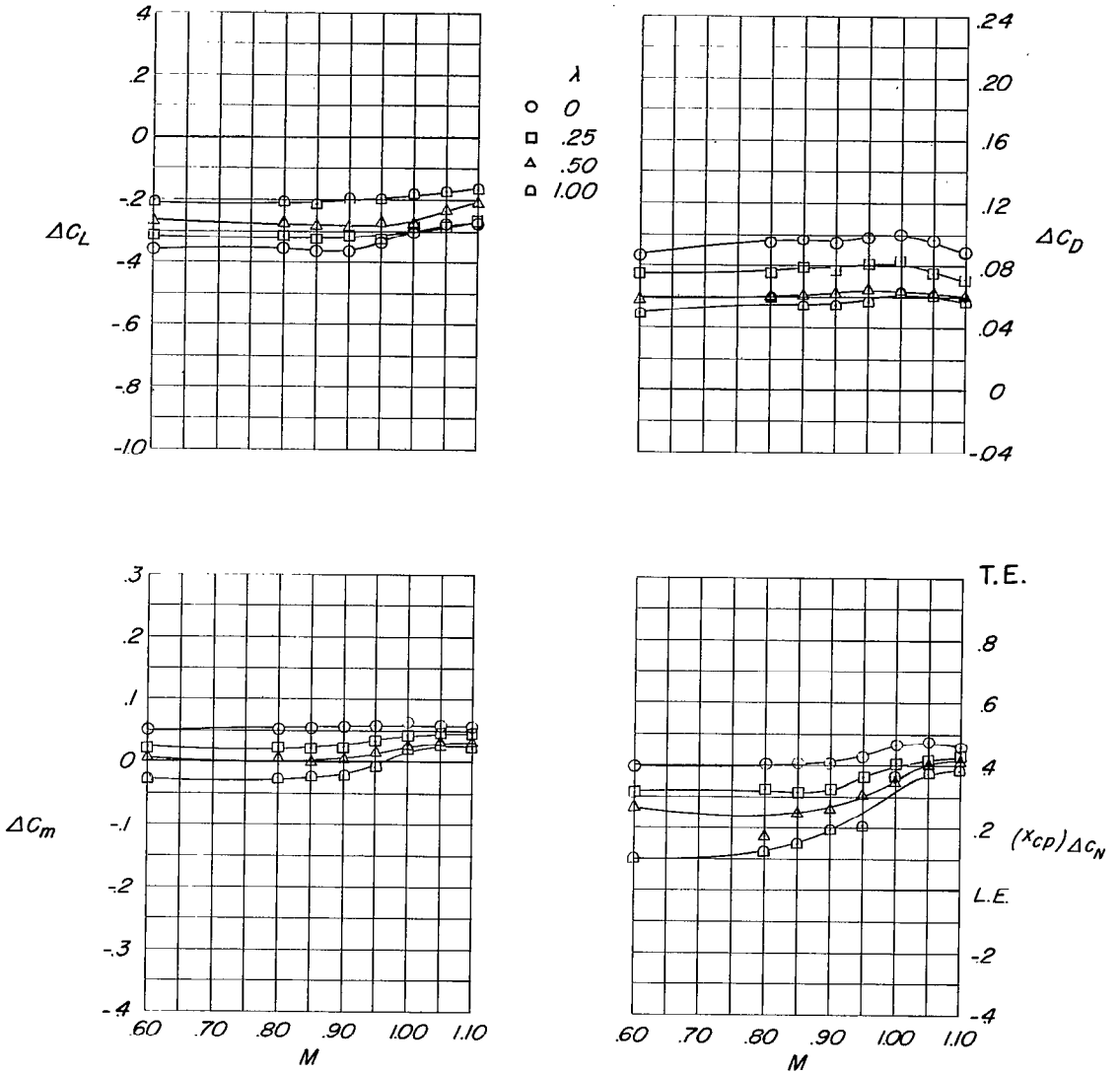
Figure 7.- Continued.



(c) $\alpha = 16^{\circ}$; $\lambda = 1.00$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

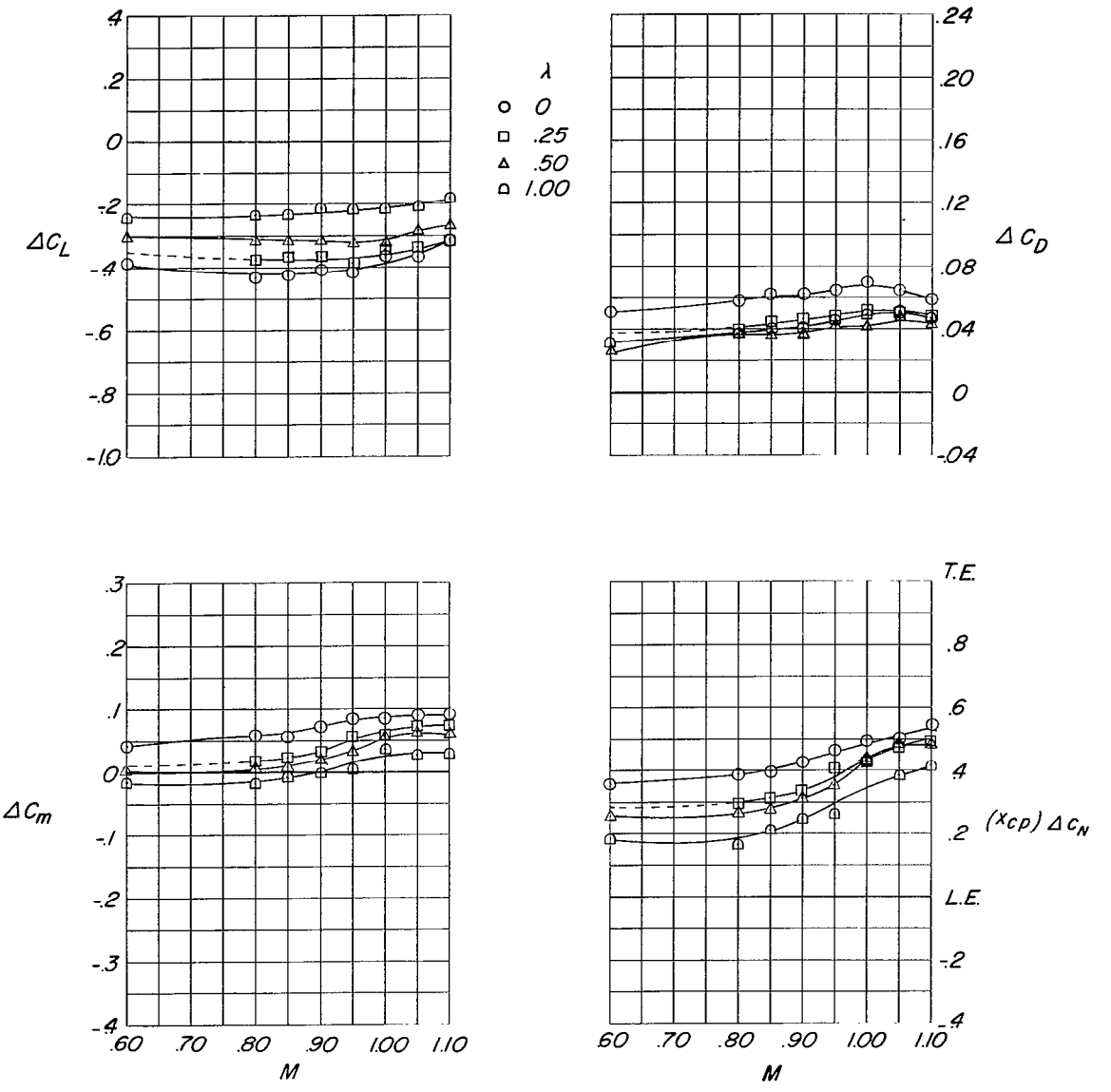
Figure 7.- Concluded.

[redacted]



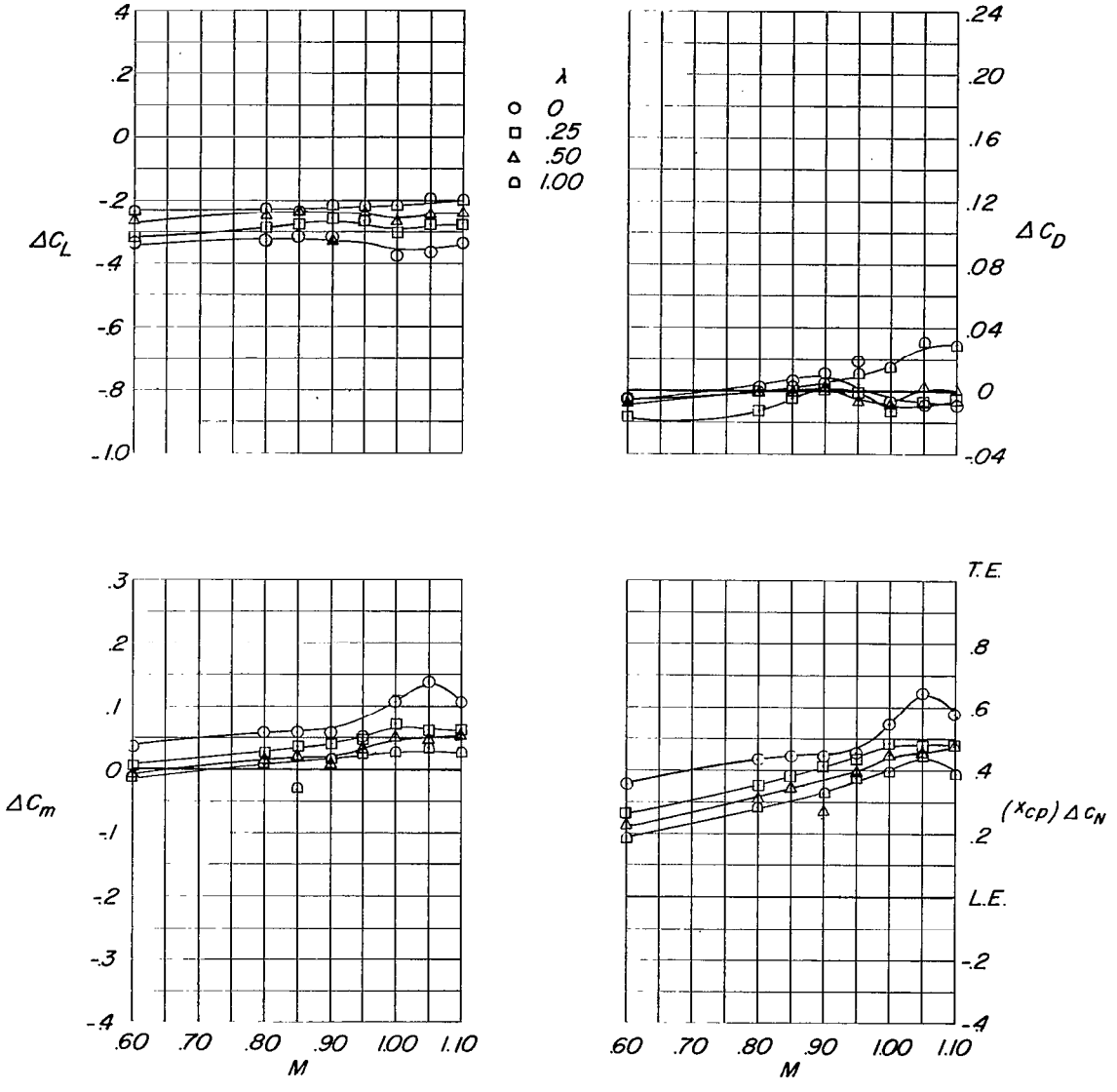
(a) $\alpha = 4^\circ$; $\Lambda_{c/4} = 45^\circ$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 8.- The effect of wing taper ratio on the variation of the incremental lift, drag, and pitching-moment coefficients, and center of pressure with Mach number for the spoiler-slot-deflector configuration on the 45° swept wings at several angles of attack.



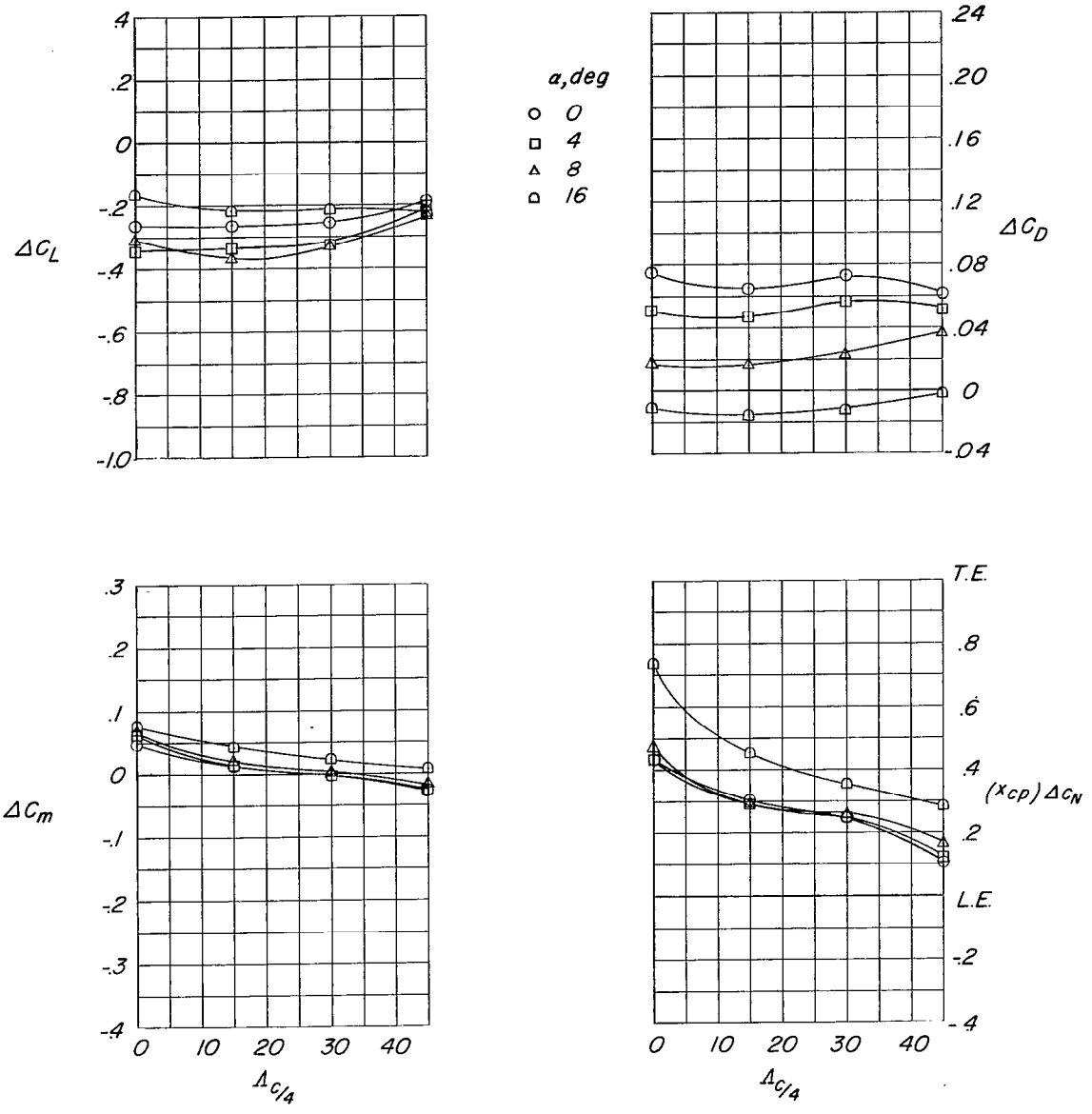
(b) $\alpha = 8^\circ$; $\Lambda_{c/4} = 45^\circ$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 8.- Continued.



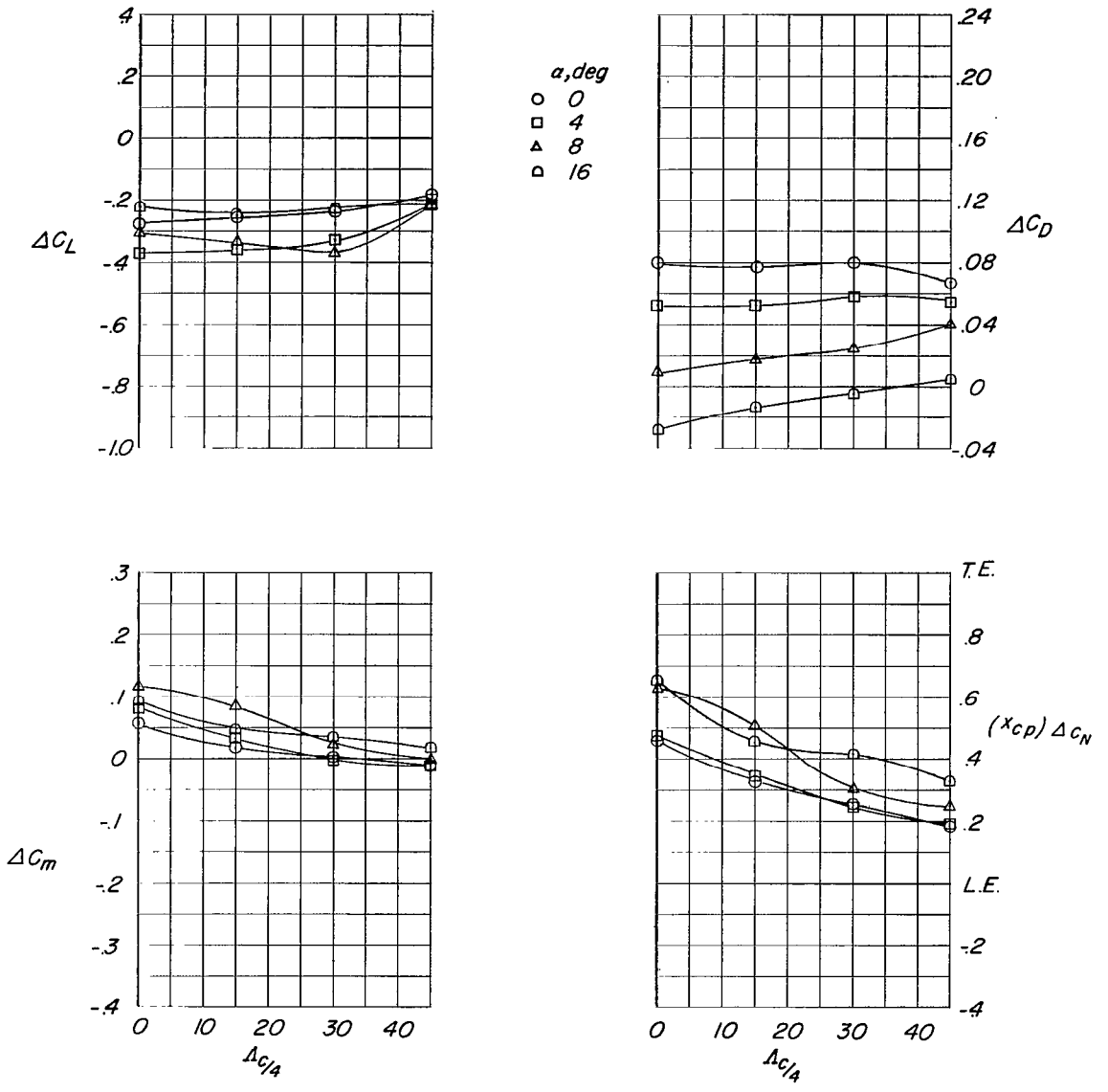
(c) $\alpha = 16^\circ$; $\Lambda_{c/4} = 45^\circ$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 8.- Concluded.



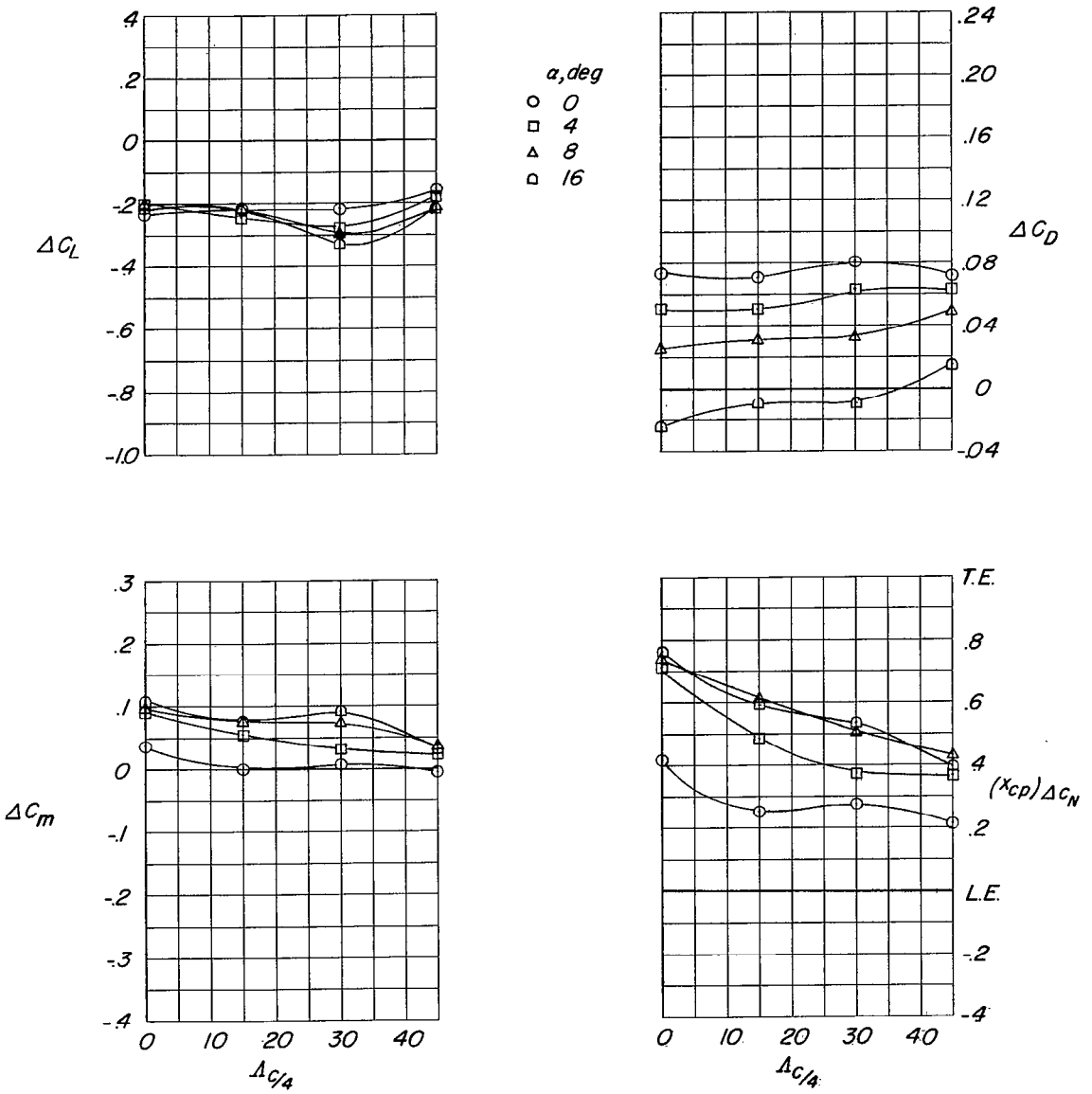
(a) M = 0.80; λ = 1.00; δ_s = -0.075c; $\frac{\delta_d}{\delta_s}$ = 0.75.

Figure 9.- The effect of angle of attack on the variation of the incremental lift, drag, and pitching-moment coefficients, and center of pressure with wing sweep for the spoiler-slot-deflector configuration on the untapered wings at Mach numbers of 0.80, 0.90, and 1.00.



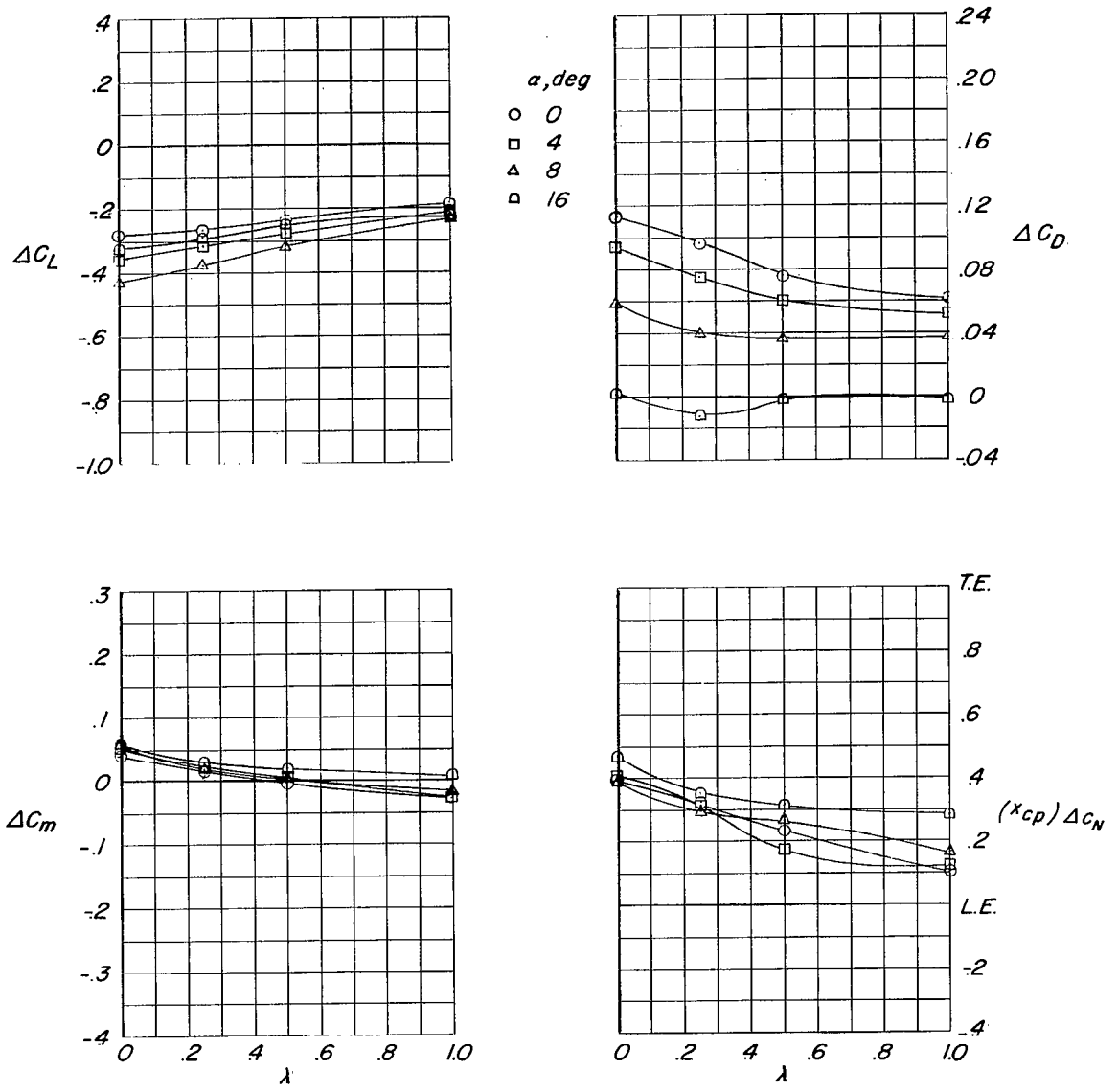
(b) M = 0.90; λ = 1.00; δ_s = -0.075c; $\frac{\delta_d}{\delta_s}$ = 0.75.

Figure 9.- Continued.



(c) M = 1.00; λ = 1.00; δ_s = -0.075c; $\frac{\delta_d}{\delta_s}$ = 0.75.

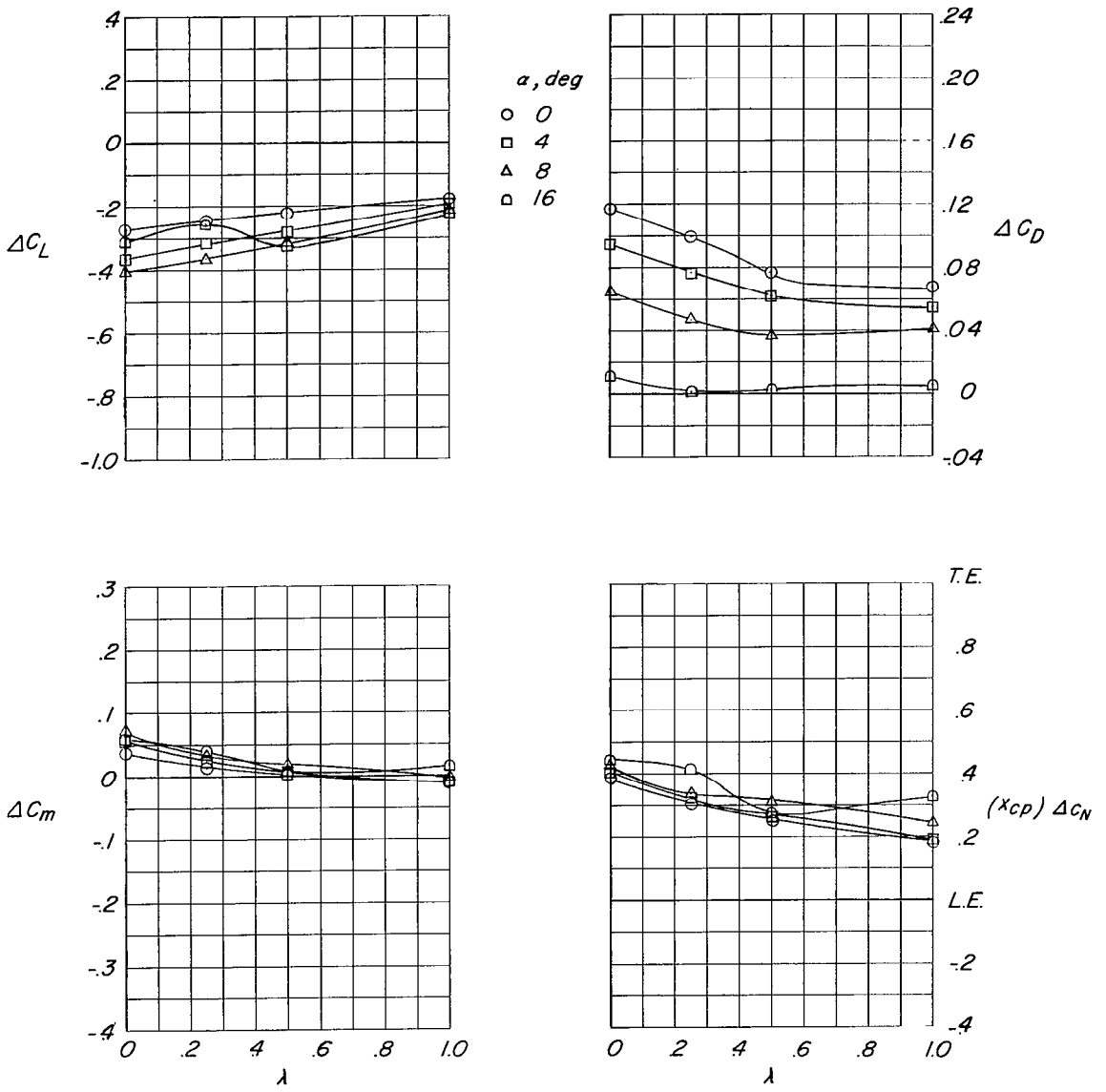
Figure 9.- Concluded.



(a) M = 0.80; $\Lambda_c/4 = 45^\circ$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 10.- The effect of angle of attack on the variation of the incremental lift, drag, and pitching-moment coefficients, and center of pressure with taper ratio for the spoiler-slot-deflector configuration on the 45° swept wing at Mach numbers of 0.80, 0.90, and 1.00.

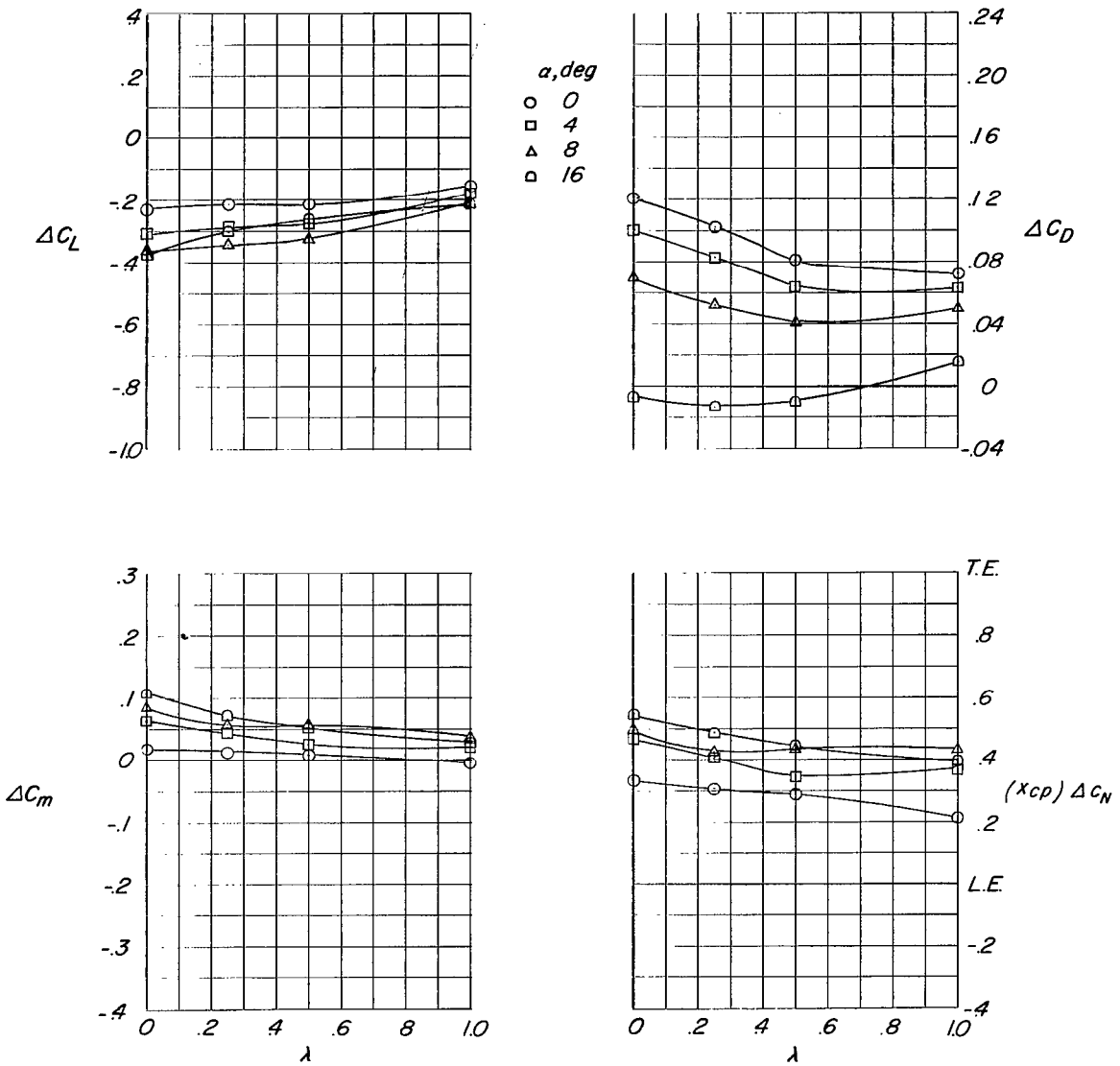
[redacted]



(b) M = 0.90; $\Lambda_{c/4} = 45^\circ$; $\delta_s = -0.075$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 10.- Continued.

[redacted]



(c) M = 1.00; $\Lambda_{c/4} = 45°$; $\delta_s = -0.075c$; $\frac{\delta_d}{\delta_s} = 0.75$.

Figure 10.- Concluded.

NASA Technical Library
3 1176 01438 0696